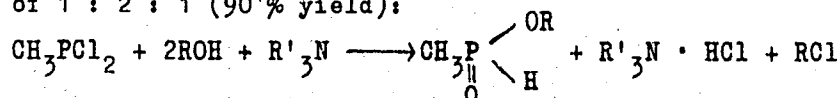


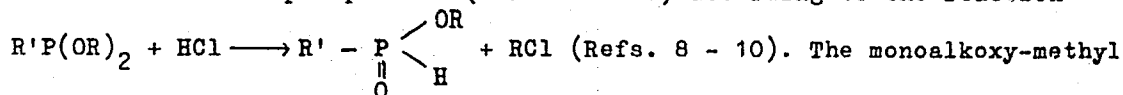
Monoalkoxy-methyl Thiophosphonates and  
Monoalkoxy-methyl Phosphonites

88483  
S/079/61/031/001/017/025  
B001/B066

only in the presence of bases (triethylamine). The reaction rate of sulfur, which is higher with monoalkyl phosphonites than with dialkyl phosphites, corresponds to the change of the electron density on the phosphorus atom. The structures of the resultant monoalkyl thiophosphinic acids were confirmed by their conversion to salts and esters. The novel monoesters of methyl phosphinic acid were obtained by reaction of methyl-dichlorophosphine with alcohols in the presence of tertiary amines in a molar ratio of 1 : 2 : 1 (90 % yield):



Not only the tertiary amine serves as a HCl acceptor, but also the resultant neutral phosphonite (Refs. 8 - 10) according to the reaction



phosphonites well soluble in organic solvents are stable compounds which do not change for years in pure condition. The yields of monoalkyl phos-

Card 2/3

Monoalkoxy-methyl Thiophosphonates and  
Monoalkoxy-methyl Phosphonites

88483

S/079/61/031/001/017/025  
B001/B066

phonites were between 75 and 90 %. There are 1 table and 16 references:  
9 Soviet, 6 US, and 1 Polish.

SUBMITTED: February 2, 1960

Card 3/3

IVANOVA, Z.V., kand. sel'skokhoz. nauk; BLIZNYUK, N.K., kand. khim. nauk;  
KOLOMIYETS, A.F.; POLYAKOVA, R.V.

New means for controlling pests in empty granaries. Zashch.  
rast. ot vred. i bol. 7 no.9:39 S '62. (MIRA 16:8)

(Granaries—Disinfection)

L 20978-66 EWT(1)/T RO/JK

ACCESSION NR: AP5019085

UR/0286/65/000/012/0110/0110

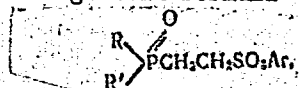
AUTHORS: Granin, Ye. F.; Fadeyev, Yu. N.; Zhil'tsova, G. I.; Bliznyuk, N. K.;  
Kolomiyots, A. F.; Golubeva, R. N.

TITLE: A method for controlling fungous diseases of plants. Class 45, No. 172153

SOURCE: Byulleten' izobretoniy i tovarnykh znakov, no. 12, 1965, 110

TOPIC TAGS: agriculture, pesticide, fungicide, disease control, plant culture

ABSTRACT: This Author Certificate presents a method for controlling fungous diseases of plants by treating the latter with fungicides. To broaden the assortment of fungicides, derivatives of  $\beta$ -phosphorylethanesulfoacid are used as fungicides. These compounds follow the general formula



where R and R' are alkoxy, aroxy, alkyl, aryl, or hydroxyl, and Ar is a non-replaced or replaced aryl.

ASSOCIATION: none

Card 1/2

L 20978-55

ACCESSION NR: AP5019085

SUBMITTED: 01Jul64

ENCL: 00

SUB CODE: LS

NO REF SOV: 000

OTHER: 000

Card 2/2 mgs

L 65099-65 EWT(a)/EIT(c)/EWT(j) FM

NR. AP5021969

NR 0074 0014 0140016 0016

547.419 1.07

Shnyuk, V. A.; Koloniyets, A. P.

Method of producing alkylarylsulfonates

Ukrainian. Izobreteniy i tovarnykh znakov

TOPIC TAGS: phosphonic acid, alkylphosphine, chlorinated aliphatic compound, phosphorus, organic sulfur compound

This Author's Certificate introduces a method for producing alkyl arylsulfonates based on alkylarylsulfonates. The process is simple and the product yield is increased. The alkyl arylsulfonates in white phosphorus and sulfur are produced.

ASSOCIATION: none

28Mar69

ENCL.

EXIDE CC, CC

XX

OTHER: CC

Card 1/1

L 1358-66 EPF(c)/EWT(m)/EWP(j) RM

ACCESSION NR: AP5024364

UR/0286/65/000/015/0032/0032

661.718.1:547.26'118

AUTHOR: <sup>44.55</sup>Bliznyuk, N. K.; <sup>44.55</sup>Kvasha, Z. N.; <sup>44.55</sup>Kolomoys, A. F.

TITLE: A method for producing esters of alkyl(aryl)phosphonous acids. / <sup>44.55</sup>Class 12, No. 173235

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 15, 1965, 32

TOPIC TAGS: organic phosphorus compound, hydrogen chloride, esterification, organic oxide, alkylphosphine

ABSTRACT: This Author's Certificate introduces a method for producing esters of alkyl(aryl)phosphonous acids by interacting alkyl(aryl)dichlorophosphines with alcohols in the presence of a hydrogen chloride acceptor. The method is simplified by using  $\alpha$ -oxides of olefins as the hydrogen chloride acceptor, e. g. ethylene or propylene oxide.

ASSOCIATION: none

SUBMITTED: 10May63

ENCL: 00

SUB CODE: 00, 00

NO REF SOV: 000

OTHER: 000

<sup>44</sup>Card 1/1

L 31810-66 EWT(1)/EWT(m)/EWP(j) RO/RM

ACC NR: AP6021678

SOURCE CODE: UR/0079/66/036/003/0475/0480

AUTHOR: Bliznyuk, N. K.; Kolomiyets, A. F.; Kvasha, Z. N.; Levskaya, G. S.; Antipina, V. V.

47  
8

ORG: All-Union Scientific Research Institute of Phytopathology (Vsesoyuznyy nauchno-issledovatel'skiy institut fitopatologii)

TITLE: Dialkyl phosphites and monoalkylphosphinites

SOURCE: Zhurnal obshechey khimii, v. 36, no. 3, 1966, 475-480

TOPIC TAGS: organic phosphorus compound, chemical reaction kinetics, toxicity, plant injury, chemical synthesis, ester, azeotropic mixture

ABSTRACT: It was found that dialkyl phosphites and monoalkylphosphinites are produced in high yields (almost quantitative) independent of the temperature at which the reagents are mixed, and degree of removal of hydrogen chloride from the reaction zone, by boiling the reaction mass, containing the reaction products of alcohols with phosphorus trichloride or dichlorophosphines, an esterification catalyst (such as sulfuric acid or p-toluenesulfonic acid), and a solvent, with azeotropic distillation of water. A preliminary estimate was made of the herbicidal activity of some of the ten compounds synthesized. In the tests the aboveground portion of the plants (the kidney bean as a typical dicot and the oat as a typical monocot) was sprayed with emulsions of

Card 1/2

UDC: 546.183:542.951.3

L 31810-66

APPROVED FOR RELEASE: 09/18/2001

CIA-RDP86-00513R000823920005-2"

the compounds in a 0.05% solution of the wetting agent OP-7 in water. The compounds of this group exhibited high selectivity with respect to dicots, their toxicity depending substantially on the aryl radical (the tendency coincides with that in aryloxyacetic acids), with 4-chlorophenoxyethyl esters being the most active. Phosphinites were more toxic than phosphites. Orig. art. has: 3 tables. [JPRS]

SUB CODE: 07, 06 / SUBM DATE: 24Aug65 / ORIG REF: 007 / OTH REF: 003

Card 2/2 LS



L 31811-66 EWT(m)/EWP(j) RM

ACC NR: AP6021679

SOURCE CODE: UR/0079/66/036/003/0480/0483

AUTHOR: Bliznyuk, N. K.; Kolomiyets, A. F.; Kyasha, Z. N.; Lovskaya, G. S.; Zhemchuzhin, S. G. 45  
B

ORG: All-Union Scientific Research Institute of Phytopathology (Vsesoyuznyy nauchno-issledovatel'skiy institut fitopatologii)

TITLE: Reaction of phenolates with ethylene chlorohydrin and dialkylchlorophosphates in aqueous solutions

SOURCE: Zhurnal obshchey khimii, v. 36, no. 3, 1966, 480-483

TOPIC TAGS: phenol, chlorohydrin, phosphate, aqueous solution, chemical synthesis, reaction rate, chemical kinetics

ABSTRACT: The synthesis of aryloxyethanols and dialkylaryl phosphates by the reaction of phenols with ethylene chlorohydrin and dialkylchlorophosphates, respectively, in the presence of aqueous alkalis was studied. A change in the order of mixing of the reagents was found to substantially increase the yields of the products. This was achieved by simultaneous synchronous addition of the alkyl (or acyl) halide and solution of alkali to the phenol at a temperature sufficient for a relatively rapid reaction. The rate of addition of the reagents in each concrete case was regulated so that the reacting substances would not accumulate in the reaction mixture during the

Card 1/2

UDC: 547.562:542.951.3/4:546.185

L 31811-66

"APPROVED FOR RELEASE: 09/18/2001" CIA-RDP86-00513R000823920005-2"

process; the pH was maintained constant at a level close to neutral. The optimum temperature for the production of aryloxyethanols was the boiling point of the mixture, while that for dialkylaryl phosphates was found to be 0-25°. This change in the order of addition of the reagents is equivalent to conducting the reaction in a large excess of the phenol. Orig. art. has: 2 tables. [JPRS]

SUB CODE: 07 / SUPM DATE: 24Aug65 / ORIG REF: 003 / OTH REF: 006

Card 2/2 L5

ACC NR: AP6029015

SOURCE CODE: UR/0413/66/000/014/0020/0020

INVENTOR: Kalutskiy, L. A.; Kolomiets, A. F.; Bliznyuk, N. K.

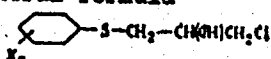
ORG: None

TITLE: A method for producing  $\beta$ -chloro- $\beta'$ -arylthioisopropanols. Class 12, No. 183727 [announced by the All-Union Scientific Research Institute of Phytopathology (Vsesoyuznyy nauchno-issledovatel'skiy institut fitopatologii)]

SOURCE: Izobret prom obraz tov zn, no. 14, 1966, 20

TOPIC TAGS: aliphatic alcohol, alkyl radical, chlorinated aliphatic compound, organic sulfur compound

ABSTRACT: This Author's Certificate introduces: 1. A method for producing  $\beta$ -chloro- $\beta'$ -arylthioisopropanols of the general formula



where X is a halogen, alkyl or alkoxyl and  $n=0-5$ . The process consists of condensing thiophenol with epichlorohydrin at a high temperature followed by isolation of the product using an appropriate method, e. g. redistillation. The condensation is done in the presence of catalytic quantities of a tertiary amine at 60-100°C with subsequent distillation of the tertiary amine and excess epichlorohydrin to increase the product yield. 2. A modification of this method in which the condensation is done in an organic solvent, e. g. benzene.

SUB CODE: 07/ SUBM DATE: 25Sep65

Card 1/1

UDC: 547.569.1:263.07

"APPROVED FOR RELEASE: 09/18/2001

CIA-RDP86-00513R000823920005-2"

INVENTOR: Kalutskiy, L. A.; Kolomiets, A. F.; Strel'tsov, R. V.; Kvasha, Z. N.; Varshavskiy, S. L.; Libman, B. Ya.

ORG: none

TITLE: Preparation of O-alkyl-S( $\beta$ -acyloxy)ethyl thiophosphonates. Class 12, No. 183745. [announced by All-Union Scientific Research Institute of Phytopathology (Vsesoyuznyy nauchno-issledovatel'skiy institut fitopatologii)]

SOURCE: Izobret prom obraz tov zn, no. 14, 1966, 23

TOPIC TAGS: ~~alkylacyloxyethyl thiophosphinate synthesis~~, mercaptoethyl ester, carboxylic acid, phosphonic acid dichloride, ORGANIC PHOSPHORUS COMPOUND, PHOSPHONIC ACID, ESTER

ABSTRACT: In the proposed method, O-alkyl S( $\beta$ -acyloxy)ethyl thiophosphonates of the general formula: (where R and R' are alkyl, substituted alkyl, substituted aryl, or aryl; R'' is lower alkyl) are obtained by the reaction of  $\beta$ -mercaptoethyl carboxylates with a phosphonic ester chloride or with a mixture of phosphonic acid dichloride and an alcohol in organic solvents in the presence of HCl acceptors, e.g., tertiary amines. Orig. art. has: 1 formula.

[WA-50; CBE No. 11]

SUB CODE: 07/ SUBM DATE: 28Jul65/

Card 1/1

UDC: 547.26'118.07

ACC NR: AP6030549

SOURCE CODE: UR/0413/66/000/016/0030/0030

INVENTOR: Bliznyuk, N. K.; Kolomiets, A. F.; Golubeva, R. N.; Varshavskiy, S. L.;  
Gladshcheyn, B. M.; Zimin, V. M.

ORG: none

TITLE: Preparation of aryl esters of N-( $\beta$ -chloroethyl)taurine. Class 12, No. 184840  
[announced by All-Union Scientific Research Institute of Phytopathology (Vsesoyuznyy  
nauchno-issledovatel'skiy institut fitopatologii)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 16, 1966, 30

TOPIC TAGS: fungicide, ~~aryl chloroethyltaurinate preparation~~, hydroxyethyltaurine,  
thionyl chloride, phosphorus pentachloride, ester, hydroxide, ethylene

ABSTRACT: To obtain aryl esters of N-( $\beta$ -chloroethyl)taurine with fungicidal  
properties, esters of  $\beta$ -hydroxyethyltaurine are treated with thionyl  
chloride or phosphorus pentachloride in an organic solvent (e.g.,  
chloroform) at boiling temperature of the solvent. The excess of  
the initial reagents and HCl formed are removed from the reaction  
mixture; the residue is dissolved in an organic solvent, e.g., an  
ether, then mixed with alcoholic solution of an acid, and evaporated.

SUB CODE: 07/ SUBM DATE: 26Jul65/

[WA-50; CBE No. 11]

Card 1/1

UDC: 547.436'26'122.07

ACC NR: AP6030565

SOURCE CODE: UR/0413/66/000/016/0034/0034

INVENTOR: Bliznyuk, N. K.; Kolomiyets, A. F.; Strel'tsov, R. V.; Varshavskiy, S. L.

ORG: none

TITLE: Preparation of  $\beta$ -mercaptoethyl esters of carboxylic acids. Class 12, No. 184862 [announced by the All-Union Scientific Research Institute of Phytopathology (Vsesoyuznyy nauchno-issledovatel'skiy institut fitopatologii)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 16, 1966, 34

TOPIC TAGS: mercaptoethyl carboxylate, alkyl mercaptoethyl carboxylate, aryl mercaptoethyl carboxylate, ~~halogenated alkyl mercaptoethyl carboxylate~~, ester, mercaptan, carboxylic acid

ABSTRACT:

To increase the yield of  $\beta$ -mercaptoethyl esters of carboxylic acids ( $\text{RCOOCH}_2\text{CH}_2\text{SH}$ , where R is an alkyl, haloalkyl, or aryloxyalkyl) from  $\beta$ -mercaptoethanol and the acids, the reaction is conducted with azeotropic removal of water in the presence of a catalyst, e.g., strong inorganic acids or phosphorus trichloride.

SUB CODE: 07/ SUBM DATE: 13Jul65

[WA-50; CBE No. 11]

Card 1/1

UDC: 547.29'262:122.07

ACC NR: AP6030568

SOURCE CODE: UR/0413/66/000/016/0035/0035

INVENTOR: Bliznyuk, N. K.; Kolomiyets, A. F.; Strel'tsov, R. V.; Varshavskiy, S. L.; Libman, B. Ya.; Protasova, L. D.

ORG: none

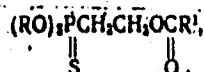
TITLE: Preparation of O,O-dialkyl S-(β-acyloxy)ethyl thiophosphates. Class 12, No. 184865. [announced by the All-Union Scientific Research Institute of Phytopathology (Vsesoyuznyy nauchno-issledovatel'skiy institut fitopatologii)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 16, 1966, 35

TOPIC TAGS: pesticide, dialkylacyloxyethyl thiophosphate, *PHOSPHATE*

ABSTRACT:

To obtain O,O-dialkyl S-(β-acyloxy)ethyl thiophosphates of the general formula:



(where R is a lower alkyl, R' is an alkyl, substituted alkyl, aryl, or substituted aryl), dialkyl chlorophosphates are treated with β-mercaptoethyl carboxylates in the presence of HCl acceptors, e.g., tertiary amines.

SUB CODE: 07/ SUBM DATE: 28Jul65

[WA-50; CBE No. 11]

Card 1/1

UDC: 547.419.1.07

ACC NR: AP6030568

"APPROVED FOR RELEASE: 09/18/2001

SOURCE CODE: UR/0413/66/000/016/0035/0035

INVENTOR: Bliznyuk, N. K.; Kolomiyets, A. F.; Strel'tsov, R. V.; Kvasha, Z. N.; Varshavskiy, S. L.; Libman, B. Ya.

ORG: none

TITLE: Preparation of O-alkyl-S(β-acyloxy)ethyl thiophosphonates. Class 12, No. 183745. [announced by All-Union Scientific Research Institute of Phytopathology (Vsesoyuznyy nauchno-issledovatel'skiy institut fitopatologii)]

SOURCE: Izobret prom obraz tov zn, no. 14, 1966, 23

TOPIC TAGS: ~~alkylacyloxyethyl thiophosphinate synthesis~~, mercaptoethyl ester, carboxylic acid, phosphonic acid dichloride, *ORGANIC PHOSPHORUS COMPOUND, PHOSPHONIC ACID, ESTER*

ABSTRACT: In the proposed method, O-alkyl S(β-acyloxy)ethyl thiophosphonates of the general formula:  
(where R and R' are alkyl, substituted alkyl, substituted aryl, or aryl; R'' is lower alkyl) are obtained by the reaction of β-mercaptoethyl carboxylates with a phosphonic ester chloride or with a mixture of phosphonic acid dichloride and an alcohol in organic solvents in the presence of HCl acceptors, e.g., tertiary amines. Orig. art. has: 1 formula. [WA-50; CBE No. 11]

SUB CODE: 07/ SUBM DATE: 28Jul65/

Card 1/1

UDC: 547.26'118.07

ACC NR: AP6035683 (A,N) SOURCE CODE: UR/0413/66/000/019/0031/0031

INVENTOR: Bliznyuk, N. K.; Kolomiyets, A. F.; Ivershina, L. P.

ORG: none

TITLE: Preparation of phosphonic ester chlorides. Class 12, No. 186466

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 19, 1966, 31

TOPIC TAGS: phosphonic acid, ester, chloride, ~~acid~~ phosphinate, phosphorus ~~trichloride~~ *chlorinated organic compound, organic phosphorus compound*

ABSTRACT: To broaden the raw material base for the preparation of phosphonic ester chlorides from monoalkyl phosphinates and a chlorinating agent, a mixture of phosphorus trichloride and chlorine is used as the chlorination agent.

[PS]

[WA-50; CBE No. 14]

SUB CODE: 07/ SUBM DATE: 043ep64

Card 1/1

UDC: 547.26'118.07

INVENTOR: Varshavskiy, S. L.; Libman, B. Ya. SOURCE CODE: UR/0413/66/000/019/0032/0032

APPROVED FOR RELEASE: 09/18/2001; CIA-RDP86-00513R000823920005-2

ORG: none

TITLE: Preparation of O-alkyl O-aryloxyethyl methylphosphonates. Class 12, No. 186473 [Announced by All-Union Scientific Research Institute of Phytopathology (Vsesoyuznyy nauchno-issledovatel'skiy institut fitopatologii)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 19, 1966, 32

TOPIC TAGS: *organic* ~~phosphorus~~ phosphorus compound, ~~alkyl aryl~~ *alkyl aryl* phosphonate, *tertiary amine*

ABSTRACT: In the proposed method, O-alkyl O-aryloxyethyl methylphosphonates are obtained by the reaction of O-alkyl methylchlorophosphonates with aryloxyethanols in the presence of HCl acceptors, e.g., tertiary amines.

[WA-50; CBE No. 14]

[PS]

SUB CODE: 07/ SUBM DATE: 26Jul65

Card 1/1

UDC: 547.26'118.07

ACC NR: AP7012418

SOURCE CODE: UR/0079/66/036-011/2024/2025

AUTHOR: Kolimiyets, A. F.; Levskaya, G. S.

ORG: All-Union Scientific Research Institute of Phytopathology (Vsesoyuznyy nauchno-issledovatel'skiy institut fitopatologii)

TITLE: Reactions of arsonic acids and their esters with thionyl chloride

SOURCE: Zhurnal obshchey khimii, v. 36, no. 11, 1966, 2024-2025

TOPIC TAGS: arsonic acid, thionyl chloride, ester

SUB CODE: 07

ABSTRACT: The conditions of the reaction of arsonic acids with thionyl chloride, to form arsenic trichloride, alkylidichloroarsenes, and diaryltrichloroarsines were studied, and the conditions for obtaining the intermediate products of these reactions were determined. Mild treatment of a suspension of arsonic acids in a nonpolar solvent with an equimolar amount of thionyl chloride yielded the addition products. The adducts could be isolated in individual form due to their solubility in organic solvents. They readily undergo decomposition with water and atmospheric moisture, to yield adducts of arsonic acids with hydrogen chloride. Aryl adducts are more thermally stable than the alkyl analogs (decomposition at 80-110° and 35-40°, respectively). Reactions of the oxichloride, oxidichloride, and hydroxydichloride decomposition products under various

Card 1/2

UDC: 547.342

0932 1352

ACC NR: AP7012418

conditions are discussed. Arsonic acids are thus converted by thionyl chloride under mild conditions to polychlorides of pentacoordinated arsenic, the stability and characteristic reactions of which determine the final result of the reactions. Esters of arsonic acids were found to react analogously with thionyl chloride. In the case of the esters the reactions are more exothermic, but the adducts formed are less thermally stable. Arsenic oxichlorides can be obtained in high yields. Orig. art. has: 6 formulas. [JPRS: 40,422]

2/2

KOLOMIYETS, A.I., inzhener-mayor

This is necessary in group flights. Vest. Vozd. Fl. no.5:  
54-55 My '61. (MIRA 14:8)  
(Airplanes, Military--Starting devices)



KOLOMIYETS, Anatoliy Mikhaylovich; LOTYSHEV, I.P., red.; KHELOBOROV,  
V.I., tekhn.red.

[Tourist routes of the Kuban] Turistskie marshruty Kubani.  
Krasnodar, Krasnodarskoe knizhnoe izd-vo, 1960. 161 p.  
(Kuban--Guidebooks) (MIRA 13:12)

88314

S/110/60/000/006/007/007  
EO73/E435

9.8300

AUTHORS: ~~Kolomiets, A.R.~~ Engineer and Rudnyy, N.M., Engineer  
TITLE: On Measuring the Temperature of Rotating Parts of Large  
Electrical Machinery

PERIODICAL: Vestnik elektropromyshlennosti, 1960, No.6, pp.64-65

TEXT: A description is given of a system used for measuring the temperature of the armature windings of a rolling mill motor. It consists of a 430 kc/s oscillator whose output is modulated by pulses with a repetition frequency of 300 to 1400 cps that depends on the resistance of a thermistor. The modulated output is directionally beamed from the rotating part by means of a ferrite antenna. The oscillations are received and amplified by means of a UHF amplifier. After passing through a detector, the pulses are amplified by a LF amplifier and fed into equipment supplying pulses of a constant amplitude and duration with the same "following" frequency. The pulses are integrated and the measured results, which are proportional to the frequency, are read off a pointer instrument. The starting and integrating blocks can be replaced by a frequency meter which is appropriately calibrated. The circuit

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88314

S/110/60/000/006/007/007  
E073/E435**On Measuring the Temperature of Rotating Parts of Large Electrical Machinery**

diagram of the apparatus is shown in Fig.2. A 100 kohm thermistor  $R$ , a capacitance  $C_1$  (0.015  $\mu\text{F}$ ) and triodes form the loop of the relaxation oscillator. From the 0.5 kohm load resistance  $R_1$ , the positive polarity pulses are fed to the input of the high-frequency oscillator ( $R_2 = 2$  kohm,  $C_2 = 0.1$   $\mu\text{F}$ ). By appropriate selection of the current in  $R_3$ , the operating points of the output triodes are pushed onto the non-working part of the characteristics, so that in the absence of a modulating pulse no HF oscillations will be generated. The receiving part consists of a receiver with an ordinary straight amplifier; the shape of the pulse at the low-frequency output does not affect the accuracy since it is intended only for triggering the starting equipment. In view of the fact that the ratio of the frequencies corresponding to the maximum and minimum temperatures is not large, integration of the square-topped pulses can be carried out with an accuracy not exceeding 0.5%; the current supply to the starting equipment must be stabilized. Experiments have shown that the

Card 2/4

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88314

S/110/60/000/006/007/007  
E073/E535**On Measuring the Temperature of Rotating Parts of Large Electrical Machinery**

apparatus is sufficiently stable against electromagnetic effects, and has a high directional effect; the relation between the pulse frequency and the temperature is almost linear in the range of 20 to 100°C. The signals can be reliably received up to distances of 4 m, which can be increased still further by using a superheterodyne circuit. The apparatus can be operated by any current source supplying over long periods a voltage of 9-10 V, the consumption does not exceed 10-12 mA. The transmitter dimensions are 100 x 60 x 20 mm, the receiver dimensions are 200 x 250 x 200 mm. The apparatus was tested under the most unfavourable conditions in rolling mills during the summer with an ambient temperature of 25-30°C. The noise level did not exceed 30% of the level of the signals. The individual noise pulses of considerable magnitude were received with periods not less than 3-5 sec, which did not greatly affect the accuracy. The stability of the thermistors and the accuracy of the integration of the pulses are the main factors determining the accuracy of the apparatus; the total error of the telemetering system should not exceed 2-2.5%. There are 3 figures

Card 3/4

XX

88314

S/110/60/000/006/007/007  
E073/E535

On Measuring the Temperature of Rotating Parts of Large Electrical Machinery  
and 2 non-Soviet references.

Fig. 2

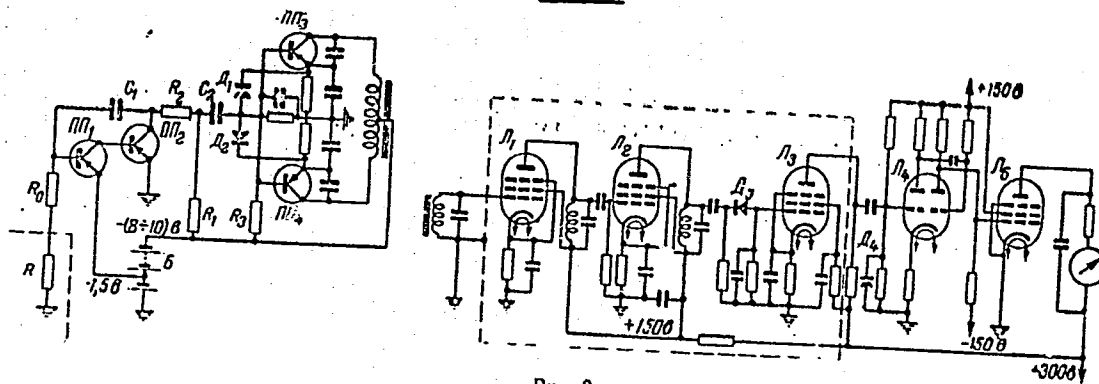


Рис. 2.

Card 4/4

KOLOMIYETS, B., doktor tekhn. nauk, prof.; KARACHENTSEV, A., inzh.

SN1-1 and SN1-2 semiconductor varistors. Radio no.9:56-58 S '65.  
(MIRA 19:1)

24,7600(1043,1454,1537)

30957  
S/576/61/000/000/016/020  
E073/E435

AUTHORS: Burdiyan, I.I., Kolomiyets, B.G.

TITLE: Investigation of the conductivity and the Hall effect of solutions of the system AlSb-GaSb

SOURCE: Soveshchaniye po poluprovodnikovym materialam, 4th. Voprosy metallurgii i fiziki poluprovodnikov, poluprovodnikovyye soyedineniya i tverdye splavy. Trudy soveshchaniya. Moscow, Izd-vo AN SSSR, 1961. Akademiya nauk SSSR. Institut metallurgii imeni A.A.Baykova. Fiziko-tehnicheskii institut, 127-128

TEXT: Solid solutions of the AlSb-GaSb system were produced by zone levelling of previously synthesized ingots of a given composition. The initial elements were spectrally pure and the impurities in each of them did not exceed 0.01%. Seven compositions were investigated of the AlSb-GaSb system containing 20, 40, 50, 60 and 80% GaSb; furthermore, AlSb and GaSb compounds were also produced. Three to four specimens of each composition were tested. The conductivity and Hall e.m.f. were measured with direct current using an ordinary compensation method. The results of the measurements for the individual specimens of one Card 1/5

30957

S/576/61/000/000/016/020  
E073/E435

Investigation of the conductivity ...

and the same composition were basically the same. The temperature dependence of the conductivity of solid solutions of AlSb (mol %) is plotted in Fig.1. In Fig.2 the temperature dependence is plotted of the Hall coefficient for solid solutions of AlSb-GaSb (mol %). All the specimens studied showed p-type conductivity throughout the entire temperature range. In the range of intrinsic conductivity the dependence of  $\ln \sigma$  on  $1/T$  was linear. From the measured temperature dependence of the conductivity in the range of intrinsic conductivity, the width of the forbidden zone  $\Delta E$  of all the compositions was determined. The dependence of the average values of  $\Delta E$ , eV on the composition (mol %) is plotted in Fig.3 (curve 1 - from electrical measurements; curve 2 - from measuring the optical absorption). Thus, the results of the electrical measurements were confirmed by the results obtained from measuring the optical absorption. From the values obtained of the Hall constant the concentration and mobility of the current carriers were calculated. At room temperature the concentration of the current carriers of the substances investigated was within the range

Card 2/5

Investigation of the conductivity ... <sup>30957</sup> S/576/61/000/000/016/020  
E073/E535

$8.6 \times 10^{17}$  to  $2.8 \times 10^{18} \text{ cm}^{-3}$ . The value remained constant up to temperatures approaching the onset of intrinsic conduction and on further increase in temperature the concentration increased sharply. The mobility of the current carriers increases continuously with increasing GaSb concentration. At room temperature the given change in the mobility was between 75 and  $525 \text{ cm}^2/\text{V}\cdot\text{sec}$ . There are 3 figures.

+

Card 3/5



Investigation of the conductivity ...

30957  
S/576/61/000/000/016/020  
E073/E535

Рис. 1. Зависимость электропроводности от температуры в твердых диэлектриках AlSb (мол %)

1—80; 2—60; 3—50; 4—40; 5—20

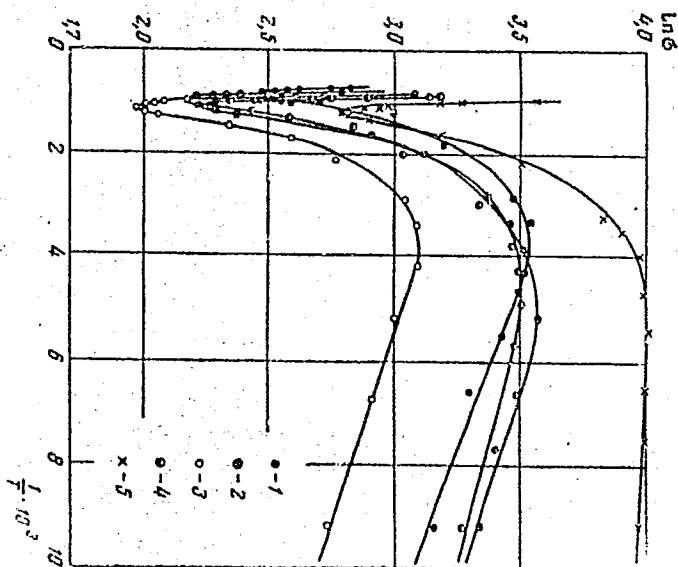


Fig.1

Card 4/5

ACC NR: AR6035292

SOURCE CODE: UR/0269/66/000/009/0048/0048

AUTHOR: Fialko, Ye. Y.; Moysya, R. I.; Mel'nyk, V. I.; Kolomiyets', H. I. --  
Kolomiyets', A. R.; Yemel'yanov, I. M.; Shul'ha, A. I.; Yavlins'kyi, A. Ya.

TITLE: Radar set for observing the drift of meteor trails.

SOURCE: Ref. zh. Astronomiya, Abs. 9.51.411

REF SOURCE: Visnyk Kyivsk. un-tu. Ser. astron., no. 7, 1966, 69-74

TOPIC TAGS: meteor trail, radar antenna, radar meteor observation, train drift

ABSTRACT: A description is given of a radar set designed at the Department of General Radio Engineering of Kiev University and which is intended for measuring the velocity and direction of the drift of ionized trains. The basic parameters of the equipment are as follows: frequency 34.47 mc; transmitter pulse power 100 kw; pulse duration 10  $\mu$ sec; sending frequency 500 cps; each fifth pulse is doubled; receiver sensitivity  $\sim 3 \mu$ v; receiver passband 600 kc. Identical type wave-duct five-element antennas are used for reception and transmission measurements of the drift velocity radial component is carried out by the pulse-coherent method. The

Card 1/2

UDC: 523.164.85

ACC NR: AR6035292

unit is approved for release: 09/18/2001 CIA-RDP86-00513R000823920005-2"  
select reflected signals on the basis of duration, amplitude and code. The equip-  
ment was tested in March-May 1964. Article includes a bibliography of 6 titles.  
V. Lebedinets. [Translation of abstract]

SUB CODE: 03, 09/

[DW]

Card 2/2

Thallium sulfide photocells with "positive" photoeffects of the blocking layer. B. T. Kolomiets. *Bull. Acad. Sci. U. R. S. S., Classe sci. math. nat., Ser. phys.* 1938, 1035-701 (in English, 704); cf. C. A. 32, 8250. - The experiments with  $Tl_2S$  were performed in the 4000-30,000 Å. range. It was established that the sign of the cond. of  $Tl_2S$  det. the sign of the photoeffect. There are produced photocells with the usual sign of the photoeffect corresponding to the electron transition from the semiconductor into the metal, and photocells with a "positive sign" of the photoeffect corresponding to the electron transition from the metal into the semiconductor in which they occupy the free energy levels which have arisen under the action of light. In the first case the cond. of the semiconductor ( $Tl_2S$ ) is of the "hole" type, while in the second case it is of the electronic type. All properties of the new photocells with the pos. photoeffect of the blocking layer were investigated. The sensitivity of the  $Tl_2S$  photoelements was 4000-6000 microamp./lumen (some samples 2500-8000 microamp./lumen). The spectral sensitivity curve occupies a very wide range of radiation, and has a max. at 1 μ. When under the action of x-rays for 30 min. the new photocells were 65 times more sensitive to them than the  $Se$  photocells. This sensitivity was const. at 0.5375. The  $Tl_2S$  photocells depend greatly on the temp. All other properties of the  $Tl_2S$  photocell do not differ fundamentally from the properties of the usual photocells with blocking layers.

W. R. Henn

KOLOMIYETS, B.F.

KOLOMIYETS, B.

SA

A 53  
w

\*4267. New "Positive" Barrier Plane Photoelectric Effect and the New Barrier Plane Photo-Cell. B. Kolomiez, *Comptes Rendus (Doklady) de l'Acad. des Sciences, U.S.S.R.* 19. 5. pp. 393-394, 1938. In English.—The action of barrier plane photo-cells is described. It has been found that thallium sulphide cells in which the ThS is in the state of electron conductivity exhibit a barrier plane photo-effect but with the inverse sign. Electrons thus pass from the metal into the semiconductor, charging it negatively. Such cells have a sensitivity which is 10 times as great as Se cells under the same conditions of illumination; the e.m.f. reaches 0.3 V; the dependence of the short circuit current and of the e.m.f. on the illumination do not differ from those of Se or  $\text{Cu}_2\text{O}$  cells whilst the spectral sensitivity is the same as that of the thalofides.  
H. I. H. S.

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*Applications of Photo  
& Electronics*

021.384.49:021.395.045.6

2100

**The Use of Sulphur-Thallium Photocells in Sound  
Pictures.**—**A. T. Kolomic.** (*Dokl. Akad. Sci.  
U.S.S.R., Div. Phys.*, 1941, Vol. 5, Nos. 4/5, pp.  
508-509. In Russian with English summary.)  
Sulphur-thallium photocells can be used for the  
reproduction of sound. When they were tested in  
three Leningrad cinemas, it was found that: (a)  
amplifier photocascades were unnecessary, (b) the  
sound-reproduction apparatus was simplified and the  
rectifier requirements became less stringent, (c) the  
photocells produced no noise, (d) the low input  
resistance removed the influence of electrostatic  
induction on the amplifier output stage. Sound  
reproduction was thus improved.

KOLOMNETS, B. T.

Mar 1947

USER/Resistors

"Thermistors," B T Kolomnets, 8 pp

"Elektrichestvo" No 3

The special undertaking of the production of resistance semi-conductors holds up the development of the new technology. Resistance semi-conductors with variegated characteristics like "thermistors," linear resistors with a small temperature coefficient, non-linear resistors on a carborundum base, etc., have a wide technological application. Graphs and tables.

1E26

Preparation of thallous sulfide photoelements. *Izv. Akad. Nauk SSSR, Ser. Fiz. Nauk* (U.S.S.R.) 17, 195-202 (1947) (in Russian). High-sensitivity photoelements are prepd. from  $Tl_2S$  contg. some amt. of  $Tl_2O$ ; the latter

formed in the main through oxidation of metallic Tl admixed to the sulfide. Tl metal contg., after purification through 4 successive fusions, Pb 0.00427, Cu 0.00318, Cd 0.00114, Ni 0.0012, was heated for several hrs. at 600° in a sealed tube, under  $10^{-4}$  mm. pressure, with twice-distd. S in the stoichiometric ratio; 10 g. of the  $Tl_2S$  obtained was mixed with 20 g. Tl and the mixt. evapd. under 0.001 mm. Hg at 600° and condensed on a coarsely ground iron surface (mostly rectangular,  $4 \times 20 \times 10 \times 20$  mm.) kept at about 400°; the amt. stated is enough for 3-4 evapns. each of which takes 20-30 min., followed by 30-40 min. cooling; only 2-3 g. of the Tl metal goes into the condensate. The condensed layer is a purely electronic conductor; its elec. cond. is  $1-10 \text{ ohm}^{-1} \text{ cm}^{-1}$ , its thermoelec. e.m.f. 300 microvolts/degree. Superficial oxidation to  $Tl_2O$  is carried out by heating in air at 120°; when the color has changed from light gray to dark gray or black, the layer is washed with  $H_2O$  (which dissolves excess  $Tl_2O$ ) until the original color is restored; these operations are repeated until no further color change occurs on renewed oxidation. The photoelement thus prepd. consists of two layers, the outer  $Tl_2S + Tl_2O$ , the inner  $Tl_2S + Tl$ ; the elec. cond. is purely electronic. A semitransparent Au electrode is deposited by sputtering and the element coated with a lacquer of styrene in  $CCl_4$ ; this lacquer was found to increase the sensitivity. The element is finally sealed in

a tube, first evacuated to  $10^{-4}$  mm. Hg, then filled with  $H_2$  under 300-400 mm. Hg. Such elements suffer no loss of sensitivity with time (verified up to 8 months), because of the removal of excess  $Tl_2O$ , held responsible for the decay due to transformation into  $TlOH$ ; the  $H_2$  atm. prevents hydration by  $H_2O$  adsorbed on the walls of the tube; this cannot be removed by heating, as the elements do not tolerate temps. above 100°. The av. sensitivity of the cells is 5000-6000 microamp./lumen, with a W incandescent lamp of 2840°K; some samples had 10,000 microamp./lumen. A cell of 0.75 sq. cm., placed at a distance from the source corresponding to 100 luxes in the visible ( $4.73 \times 10^{-4} \text{ w./sq. cm.}$ ), gave a photocurrent of 40 microamp.; hence, the sensitivity =  $138 \times 10^{-9} \text{ amp./w.} = 0.501 \times 10^{-9} \text{ amp./lumen}$ ; the coeff. of conversion of light into elec. energy = 0.08%.

N. Thon

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*B*

Measurement of Temperature by Means of Resistance Thermometers Made of Semiconductors. (In Russian.)  
B. T. Kolomiets and I. T. Sheftel. Zhurnal Tekhnicheskoi Fiziki (Journal of Technical Physics), v. 17, Oct. 1947, p. 1106-1110.

Proposes use of  $UO_2$  the resistance of which changes markedly with temperature, for the above. Methods for production of such thermometers and data on their characteristics and performance are presented.

1ST AND 2ND CATEGORIES

PROCESSES AND PROPERTIES INDEX

MATERIAL INDEX

COMMON CHARACTERISTICS INDEX

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

1ST AND 2ND CATEGORIES

PROCESSES AND PROPERTIES INDEX

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A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100



KOLCHIVETS, B.

PA 26180

USSR/Physics  
Selenium  
Photoelectric Effect

Sep 1947

"The Valvular Photoeffect in Selenium with Cadmium  
Admixture," B. T. Kolchivets, E. K. Putseyko, 6 pp

"Zhur Eksper i Teoret Fiz" Vol XVII, No 9

The article discusses experiments which resulted in the data contained in it. The most important discovery was the fact that the introduction of a cadmium admixture into selenium by means of simultaneous vaporization of selenium and cadmium in a vacuum results, not only in a change of the spectral disposition of the sensitivity of the photoelements,

26180

USSR/Physics

(Contd.)

Sep 1947

but also in the formation of a new type of photoelement. Submitted at the State Optical Institute, and the Physico-Technical Institute of the Academy of Sciences of the USSR.

26180

KOLOMIYETS, B. T

PA40784

USSR/Physics

Sep 1947

Indium - Properties  
Photoelectric Effect

"Photoelectric Properties of Sulfide and Selenide  
of Indium," B. T. Kolomiets, S. M. Rykin, 5 pp

"Zhur Tekh Fiz" Vol XVII, No 9

Discusses results of observations on the photoelectric properties of various Indium compounds:  $\text{In}_2\text{S}_3$ ;  $\text{InS}$ ;  $\text{In}_2\text{S}_5$ ;  $\text{In}_2\text{Se}_3$ ;  $\text{InSe}$ ; and  $\text{In}_2\text{Se}_5$ . Attention was directed to the internal photoelectric effect. Discusses photoconductivity of  $\text{InSe}$  and  $\text{InS}$ , treatment of  $\text{InSe}$  layers with selenium vapors, treatment of  $\text{InS}$  layers with sulfur vapors, and gives an evaluation

USSR/Physics (Contd)

40784  
Sep 1947

of results. Authors are affiliated with the Leningrad Physicotechnical Institute, Academy of Sciences of USSR. Submitted, 3 Jun 1947.

40784

KOLOMIETS, B. T.

PA 21T104

USSR/Physics

Photoelectric Effect  
Selenium

Jan 1947

"The Positive-valve Photoelectric Effect in Selenium,"  
B.T. Kolomiets, 2 pp

"Dok Ak Nauk SSSR" Vol LV, No 3

Submitted by A. F. Ioffe, Leningrad Physical Technical  
Institute, Academy of Sciences of the USSR, 6 Aug 46.  
Discusses the fact that the sign of the potential,  
derived under the illumination of translucent photo-  
elements created out of lead and selenium oxides, con-  
forms to the transfer of electrons in an adjoining  
metal under the effect of light from a translucent  
material.

21T104

KOLOMIYETS, B. T.

PA 58T96

~~USSR~~/Physics

Phototubes  
Selenium

May 1947

"Differential Spectral Phototubes," B. T. Kolomiyets,  
Leningrad Phys Tech Inst, Acad Sci USSR; E. K. Put-  
seyko, State Optical Inst, 2 pp

"Dok Akad Nauk SSSR, Nova Ser" Vol LVI, No 6

Describes interesting results of experimental work  
with valve phototubes on introduction of various  
metals and semiconductors, especially of cadmium,  
into selenium. Submitted by Academician A. F.  
Ioffe, 11 Dec 1946.

59T96

KOLOMIYETS, B. T.

18/49T100

USSR/Physics  
Photoelectric Cells  
Frequency Measurements

Nov 48

"Frequency Characteristics of Lead Sulfide Photoresistance," B. T. Kolomiyets, Leningrad Physico-tech Inst, Acad Sci USSR, 2 pp

"Zhur Tekh Fiz" Vol XVIII, No 11

Letter to the editor states subject frequency characteristics. Speculates on possible use of photoresistance in sound movies and other fields at present using photoelectric cells. Mentions movie theaters in which they have been used. Submitted 19 Jul 48.

18/49T100

KOLOMIYETS, B. T.

PA 38/49T103

USSR/Physics

Photoelectric Cells, Lead

Mar 49

Photoelectric Cells, Bismuth  
Sulfide

"Photoresistance," B. T. Kolomiets, Cand Tech Sci  
Leningrad Physicotech Inst, Acad Sci USSR, 54 pp  
"Elektrichestvo" No 3

Notes successful studies of characteristics of  
lead sulfide photoresistance and increased  
interest in this type of photoelement. Describes  
new kind of photoresistance, developed by

38/49T103

USSR/Physics (Contd)

Mar 49

Leningrad Physicotech Inst, using artificial bis-  
muth sulfide ( $\text{Bi}_2\text{S}_3$ ), the photoelectric  
characteristics of which surpass characteristics  
of well-known types of photoresistance. Gives  
three diagrams and three tables of experimental  
results, and one illustration of photoresistance  
from bismuth sulfide.

38/49T103

KOLOMIYETS, B.T.

PA 24/49T111

USSR/Physics  
Photoelectric Cells  
Film

Jan 49

"Photoresistance of Bismuth Sulfide," B. T. Kolomiya,  
Leningrad Physicotech Inst, Acad Sci USSR, 6 pp

"Zhur Tekh Fiz" Vol XIX, No 1

Describes characteristics of new-type photoelement  
photoresistors from artificially prepared bismuth  
sulfide. In contrast to selenium and thallium photo-  
resistors (thalofides), contact is effected by apply-  
ing metallic electrodes directly on photosensitive  
film.

24/49T111

KOLOMIYETS, B. T.

178T61

USSR/Electricity - Control Circuits Apr 51  
Thermistors

"New Types of Thermistors," B. T. Kolomiets, Cand  
Tech Sci, I. T. Shetel', Engr, Sci Res Inst of  
Min of Communications Equipment Ind

"Elektrichestvo" No 4, pp 55-57

Gives description and characteristics of MNT-1, MNT-4, and MNT-5 thermistors. The thermistors are made with resistances of 1,000-200,000  $\Omega$  at 20°C. They are designed for operation at temp of -100 to +120°C. Their time const (thermal inertia) is comparable with that of ordinary

178T61

USSR/Electricity - Control Circuits Apr 51  
(Contd)

mercury thermometer, i.e., around 100 sec in air and 4 sec in water. Submitted 29 Sep 50.

178T61



KOLOMIYETS, B. T.

USSR/Electricity - Photocells

Nov 51

"Commercial Photocell Types," B. T. Kolomiyets,  
Cand Tech Sci, Leningrad Physicotech Inst, Acad  
Sci USSR

"Elektrichestvo" No 11, pp 44-51

Discusses the spectral response, sensitivity,  
volt-amp characteristics, noise, stability, and  
temp and frequency dependencies of the FS-A1  
(lead sulfide) and FS-B2 (bismuth sulfide) photo-  
cells. In detn of the integral sensitivity,  
recommends the use of sp sensitivity (in microamp  
per lumen or watts per volt). Submitted 20 Jul  
51.

201T63

KOLMIYETS, B. T.

USSR/Physics - Photoconductivity  
Photoconductive Cells

Jan 51

"Characteristics and Properties of Photoconductive Cells Made of Lead Sulfide," B. T. Kolmiyets, Leningrad Physicotech Inst, Acad Sci USSR

"Zhur Tekh Fiz" Vol XXI, No 1, pp 3-11

Considers photocurrent vs temp, dark resistance vs light, spectral sensitivity,  $v$ -amp characteristic (photocurrent vs impressed voltage), photocurrent vs intensity of illumination, int resistance vs temp, sensitivity vs temp, photoresistances vs frequency for various sensitivities, emf noise vs potential difference, stability of ohmic resistance and photocurrent, etc. Submitted 5 Jun 50.

KOLOMIYETS, B. T.

USSR/Physics - Semiconductors

Jan/Feb 52

"Mechanism of Photoconductivity and Conductivity in Layers of Lead Sulfide," B. T. Kolomiyets, Leningrad Phys-Tech Inst, Acad Sci USSR

"Iz Ak Nauk SSSR, Ser Fiz" Vol XVI, No 1, pp 70-80

Author investigated experimentally PbS layers obtained by evapn in vacuo with subsequent thermal treatment in air. Gold electrodes were used. Measurements were performed on samples of various thickness, various oxidation, with high or low resistance and various inertia and photosensitivity. Indebted to D. N. Nasledov and A. I. Gubanov.

218r88

KOLOMIYETS, B. T.

USSR/Physics - Semiconductors, Thermo- Mar/Apr 52  
resistances

"New Industrial Thermoresistors," B.T. Kolomiyyets,  
I.T. Shetel'

"Iz Ak Nauk SSSR, Ser Fiz" Vol XVI, No 2, p 230

Abbreviated text of report, published in "Elektrichestvo" 4, 1951, and in the booklet "Thermoresistances, Semiconducting Resistances," 1950. Samples of resistances with a thermal coeff of  $-3\%$  on  $1^{\circ}\text{C}$  at relatively low resistance ( $1.10^3$  to  $2.10^6\Omega$ ) were produced by applying mixts of Cu and Mn oxides. These resistances show great stability and long service

2207101

life in the range of  $-100$  to  $+120^{\circ}\text{C}$ . At present 3 types of resistances are produced; they may be employed for temp control and compensation of elec measuring instruments, etc. Their inertia is of the order of Hg thermometers.

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KOLOMIYETS, B. T.

PA 234T100

USSR/Physics - Photoeffect, Internal  
1 Apr 52

"The Internal Photoeffect in Cadmium Sulfide Polycrystal," B. T. Kolomiets

"Dok Ak Nauk SSSR" Vol 83, No 4, pp 561-563

Gives the various forms of the spectral distribution of internal photoeffect in CdS polycrystal (namely, curves showing sensitivity in units of incident energy versus wave length). Notes that the photoresistance of polycryst CdS is distinguished in this work by its high

234T100

stability. Found that the photoelec properties of CdS are not connected with the size of the crystals nor with the method of their prepn. Submitted 9 Feb 52 by Acad A. F. Ioffe.

(PA 56no. 668:5473 53)

234T100

KOLOMIYETS, B.T. (Leningrad)

Problems in using photoreisistors. Avton. 1 telen. 14 no. 445-459  
Jl-Ag '53. (MIRA 10:3)

(Automatic control) (Photoelectricity)

KOLOMIYETS, Boris Timofeyevich, doktor tekhnicheskikh nauk, laureat  
Stalinskoy premii; KIPNIS, S.Ye., redaktor; DMITRIYEVA, R.V.,  
tekhnicheskii redaktor.

[Photoresistors; new types of photoelectric cells for automatic  
control] Fotosoprotivleniia; novye tipy fotoelementov dlia  
avtomatiki. Moskva, Izd-vo "Znanie," 1954. 23 p. (Vses. ob-vo  
po rasprostraneniui polit. i nauchn. znani, ser.4, no.32)  
(Photoelectric cells) (MIRA 7:12)

KOLCHYETS, B.T.

District: K23

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KOLOMIYETS, B. T.  
USSR/Physics - Electrical properties

FD-3104

Card 1/2      Pub. 153 - 3/24

Author      : Kolomiyets, B. T.; Goryunova, N. A.

Title      : ~~Properties and structure of ternary semiconductor systems.~~  
I. Electrical properties and structure of certain materials in the system Tl-Sb-Se

Periodical   : Zhur. tekhn. fiz., 25, No 6 (June), 1955, 984-994

Abstract    : The authors present first results of an investigation of the structure and electrical properties of certain materials in the system Tl-Sb-Se. They present preliminary data on a new group of amorphous substances of the type  $Tl_2Se \cdot As_2(SeTe)_3$ , which will be discussed in greater detail soon. They conclude the existence of a chemical compound of composition  $Tl_2Sb_2Se_4$  in the pseudobinary section  $mTl_2Se \cdot nSb_2Se_3$  of ternary system Tl-Sb-Se; the given compound in its electrical properties is a typical hole semiconductor with conductivity at room temperature of the order  $10^{-4}/\text{ohm}\cdot\text{cm}$  and photoconductivity with maximum at wavelength 1.4 micron. By varying the composition of the components in the series  $mTl_2Se \cdot nSb_2Se_3$  they can obtain an entire gamma of complex semiconductor material with conductivity lying in the limits of six orders of magnitude and photoconductivity with spectral distribution smoothly varying

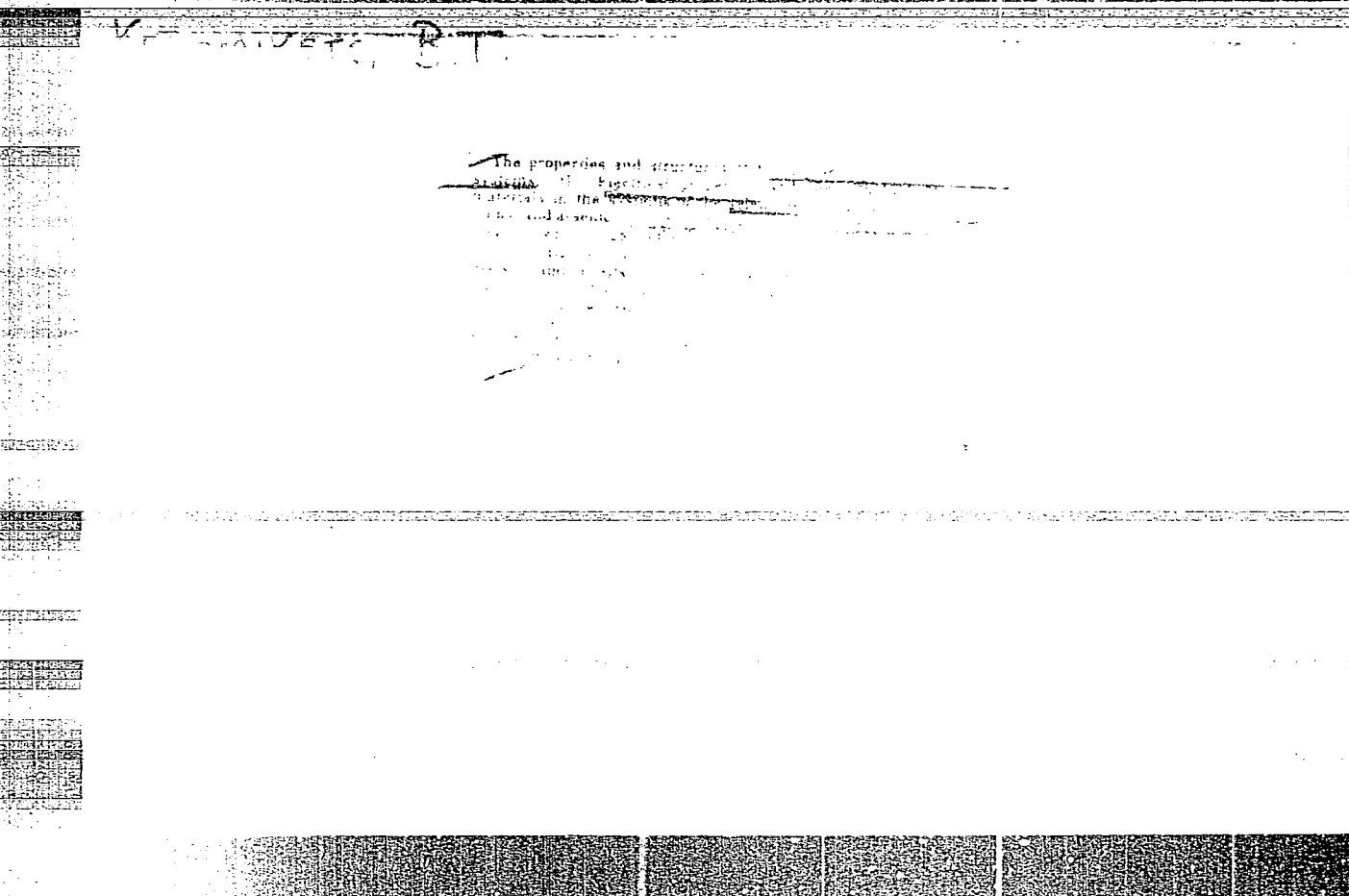
Card 2/2

FD-3104

in rather wide limits with maxima from 0.8 to 1.4 micron. Substitution in the studied system of antimony by arsenic gives a new group of semiconductor materials differing by an amorphous structure; introduction of tellurium into the given compounds increases the conductivity up to  $10^{-3}/\text{ohm}\cdot\text{cm}$ , without change of the amorphous structure. The authors claim that their investigation of the system  $m\text{Tl}_2\text{Se}\cdot n\text{Sb}_2\text{Se}_3$  along with the preliminary data on the properties of  $\text{Tl}_2\text{Se}\cdot\text{As}_2(\text{Se},\text{Te})_3$  promises new semiconductor materials with qualitatively new properties. The authors acknowledge the assistance of Ye. P. Yepishkin in the synthesis of the compounds and of S. V. Slobodchikov, graduate student of Leningrad State University, in the measurement of conductivity and photoconductivity in system  $m\text{Tl}_2\text{Se}\cdot n\text{Sb}_2\text{Se}_3$ . They also thank Professor Z. G. Pinsker for information on structure of new compounds, N. N. Fedorova for study of structure of new substances (particularly amorphous semiconductors), and Professor D. N. Nasledov for advice. Two references.

Institution :

Submitted : January 28, 1955



**KOLOMIYETS, Boris Timofeyevich, professor, doktor tekhnicheskikh nauk;**

**KIPNIS, S.Ye., redaktor; ISLENT'YEVA, P.G., tekhnicheskii redaktor**

**[Photoresistance in automatic control] Fotosoprotivleniia v avtomatike. Moskva, Izd-vo "Znanie," 1956. 30 p. (Vsesoiuznoe obshchestvo po rasprostraneniia politicheskikh i nauchnykh snanii. Ser.4, no.12) (MIRA 9:7)**

**(Photoelectric cells) (Automatic control)**



Linear photoelectric effect in  $\text{Bi}_2\text{Te}_3$  and  $\text{Sb}_2\text{Te}_3$  was studied by A. I. Kobzarev, A. O. Gerasimova, and I. M. Gerasimov. The authors report on the results of measurements of the photoelectric effect in these materials. It was found that the photoelectric effect in  $\text{Bi}_2\text{Te}_3$  is linear and in  $\text{Sb}_2\text{Te}_3$  it is non-linear. The photoelectric effect in  $\text{Bi}_2\text{Te}_3$  is characterized by a linear relationship between the photoelectric current and the intensity of the incident light. The photoelectric effect in  $\text{Sb}_2\text{Te}_3$  is characterized by a non-linear relationship between the photoelectric current and the intensity of the incident light. The authors also report on the results of measurements of the photoelectric effect in  $\text{Bi}_2\text{Te}_3$  and  $\text{Sb}_2\text{Te}_3$  at different temperatures. It was found that the photoelectric effect in  $\text{Bi}_2\text{Te}_3$  is linear and in  $\text{Sb}_2\text{Te}_3$  it is non-linear. The photoelectric effect in  $\text{Bi}_2\text{Te}_3$  is characterized by a linear relationship between the photoelectric current and the intensity of the incident light. The photoelectric effect in  $\text{Sb}_2\text{Te}_3$  is characterized by a non-linear relationship between the photoelectric current and the intensity of the incident light.

[illegible]



graphically and section drawings at some of the sites.



4502 CHARACTERISTICS OF PHOTOSENSITIVE POLYCRYSTALLINE CADMIUM SULFIDE  
and A.O. Oleak.

Elektricheskoe, 1956, No. 3, 1-2, 1. Russian.

Photoresistors of polycrystalline cadmium sulfide have intrinsically different characteristics compared with other bismuth and lead sulfide types. For cadmium sulfide monocrystals, viz. high operating voltages, low dark current, and low temperature coefficients.

able. Only their technological development and the production technology of devices. The development of technology has been rapid, particularly for photorelays without amplifiers. For d.c. operation these devices are used in conjunction with the photoresistor and an electromagnetic relay. For a.c. operation, a selenium rectifier and a 0.25  $\mu$ F capacitor are required in addition. The photoresistor is more reliable than vacuum photorelays and has a longer life. It is used in industrial applications where the reliability of the device is important.

B. S. Kovalev

KOLOMIYETS, B.T.  
GORJUNOVA, N.A.; KOLOMIYETS, B.T.

New vitreous semiconductors. Izv. AN SSSR. Ser. fiz. 20 no. 12: 1496-1500  
D '56. (MLBA 10:3)

1. Leningradskiy fiziko-tehnicheskij institut Akademii nauk SSSR.  
(Semiconductors)

KOLOMIYETS, ~~LEE~~ B.T.

USSR / Physical Chemistry. Crystals.

B-5

Abs Jour : Ref Zhur - Khimiya, No 8, 1957, 25950

Author : N.A. Goryunova, B.T. Kolomiyets, A.A. Mal'kova

Title : Properties and Structure of Ternary Semiconductor Systems. III. Conductivity and Photoconductivity in Systems of Thallium, Antimony and Bismuth Sulfides.

Orig Pub : Zh. tekhn. fiziki, 1956, 26, No 8, 1625 - 1633.

Abstract : It was established by the microstructural x-ray diffraction and the thermal analyses that only one chemical compound  $Tl_2S.3Sb_2S_3$  of a narrow homogeneity region existed in the system  $xTl_2S - (1 - x)Sb_2S_3$ . All the alloys of this system are semiconductors of a photoconductivity  $\sigma$ , which does not exceed the  $\sigma$  of the initial binary components in respect of the absolute sensitivity, as well as of the spectral distribution, and of a conductivity  $\sigma$ , which is less than the  $\sigma$  of the initial binary compounds.

Card : 1/2

USSR / Physical Chemistry. Crystals.

B-5

APPROVED FOR RELEASE: 09/18/2001

CIA-RDP86-00513R000823920005-2

Abs Jour : Ref Zhur - Khimiya, No 8, 1957, 25950

Abstract : All the alloys of the system  $xSb_2S_3.(1 - x)Bi_2S_3$  are metallic gray and do not differ from the initial binary components either by the crystallization character (needles), or by the structure. All the alloys are solid replacement solutions with semiconductor properties. The  $\sigma$  of some of these alloys is considerably less than that of the initial substances, and their long-wave maximum of the spectral sensitivity is greater. See RZhKhim, 1956, 38869 for Part II.

Card : 2/2

Kolomiyets, B.T.

KOLOMIYETS, B.T.

137-58-4-6978

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 4, p 95 (USSR)

AUTHORS: Goryunova, N. A., ~~Kolomiyets, B. T.~~

TITLE: Vitreous Semiconductors (Stekloobraznyye poluprovodniki)

PERIODICAL: V sb.: Vopr. metallurgii i fiz. poluprovodnikov. Moscow, AN SSSR, 1957, pp 110-120

ABSTRACT: The possibility of isomorphic substitutions in  $\text{TiSbSe}_2$  compounds was studied with the purpose of attempting to discover systems having semiconductive qualities. As the Sb was replaced by arsenic, the electric conductivity  $\sigma$  diminished. However, the substance having the composition  $\text{TiAsSe}_2$  did not possess a crystalline structure. An attempt to substitute Te for selenium resulted in an increase in the  $\sigma$  of the system  $\text{Ti}_2\text{Se} \cdot \text{As}_2\text{Se}_3$ - $\text{Ti}_2\text{Se} \cdot \text{As}_2\text{Te}_3$ , but the structure continued to be amorphous. A study of the structure and electrical properties of this system assisted in determining the presence of amorphous states in the following systems:  $\text{Ti}_2\text{Se} \cdot \text{Sb}_2\text{Se}_3$ - $\text{Ti}_2\text{Se} \cdot \text{As}_2\text{Se}_3$ ,  $\text{Ti}_2\text{Se} \cdot \text{As}_2\text{Se}_3$ - $\text{Ti}_2\text{Se} \cdot \text{As}_2\text{Te}_3$ ,  $\text{Sb}_2\text{Se}_3$ - $\text{As}_2\text{Se}_3$ ,  $\text{Ti}_2\text{Se} \cdot \text{As}_2\text{Se}_3$ ,  $\text{As}_2\text{Te}_3$ - $\text{As}_2\text{Se}_3$ ,  $\text{As}_2\text{S}_3$ - $\text{As}_2\text{Se}_3$ ,  $\text{Sb}_2\text{S}_3$ - $\text{As}_2\text{S}_3$ , which are typical glasses when considered in the light of a number of criteria. The limits of the vitreous state

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137-58-4-6978

## Vitreous Semiconductors

for this series of systems was found, and it was also found that the boundary substances may be obtained both in the crystalline and in the amorphous state. The  $\sigma$  of the compounds lying within the limits of glass formation had a magnitude attaining  $10^{-3}$  mho/cm. It was found that the new vitreous substances are typical semiconductors, and  $\sigma$  may change by several orders of magnitude in the case of the boundary substances on transition from the vitreous to the crystalline state. Glasses do not have absorption bands in the 2-14 mμ interval. By their chemical composition, these glasses may be designated as chalcogenic. The semiconductors investigated were distinguished by a low softening temperature (from 100-300°) and high brittleness. Structural investigation of the substances beyond the limits of the vitreous state show that some of them, when in the "crystalline" state, consisted of 2-phase systems of crystal and glass. In a study of the  $Tl_2Se$  [  $xSb_2Se_3(1-x)As_2Se_3$  ] system, in which As replaced antimony, a second vitreous phase was found in the  $TlSbSe_2$  compound. Thermal analysis of the 2-phase substance showed that the chemical compound dissolves into the vitreous component of the melt at a temperature above the liquidus. The reaction of the components in this system is described by the equation:  $x(Tl_2Se \cdot As_2Se_3)$  vitreous phase  $\cdot (1-x)(Tl_2Se \cdot Sb_2Se_3)$  crystalline phase. The following systems were also investigated:  $xAs_2Se_3(1-x)Sb_2Se_3$  and  $xTl_2Se(1-x)As_2Se_3$  with isomorphic substitution of

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137-58-4-6978

### Vitreous Semiconductors

Sb and As. The phase composition of the former was  $x [ 1/6(\text{Sb}_2\text{Se}_3) \cdot 5/6 (\text{As}_2\text{Se}_3) \text{ vitreous phase} \cdot (1-x) \text{Sb}_2\text{Se}_3 \text{ crystalline phase}]$ . The phase composition of the latter was  $x(\text{Tl}_2\text{Se} \cdot \text{As}_2\text{Se}_3 + \text{Tl}) \text{ vitreous phase} \cdot (1-x) \text{TlSe crystalline phase}$ .

N. Sh.

1. Semiconductors (Vitreous)--Structural analysis
- Thermal analysis
2. Semiconductors (Vitreous)

Card 3/3

107-57-1-48/60

AUTHOR: Kolomiyets, B.

TITLE: Photoresistors (Fotosoprotivleniya)

PERIODICAL: Radio, 1957, Nr 1, pp 47-50 (USSR)

ABSTRACT: Soviet photoresistors have type designations as follows: FS-A1, ...FS-A4, FS-B0, FS-B2, FS-K0, FS-K1, and FS-K2. The letters FS stand for "photoresistor"; A, B and K designate the type of photoresistor; figures refer to the particular construction. A dimensional drawing presents information about the construction of 6 basic types of Soviet photoresistors. The values of dark resistance for 4 types are indicated in table 1. Dissipation power for 3 types (table 2) and the time constant for 4 types (table 3) are presented. Photoresistor characteristics, such as voltage-current, illumination, sensitivity, dissipation capacity, spectral sensitivity, inertia, etc., are discussed in some detail. Two automatic circuits using photoresistors, one for counting objects and another for checking the level in a bunker, as suggested by L. S. Genkin, are discussed. A simple AC relay circuit controlled by a photoresistor is also presented.

There are 14 figures and 3 tables in the article.

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APPROVED FOR RELEASE: 09/18/2001

CIA-RDP86-00513R000823920005-2"

8(0)-9(4)

SOV/112-58-3-4334

Translation from: Referativnyy zhurnal. Elektrotehnika, 1958, Nr 3, p 131 (USSR)

AUTHOR: Kolomiyets, B. T. *Dr. Phys. Math Sci*

TITLE: Semiconductors and Their Application in Automation  
(Poluprovodniki i ikh primeneniye v avtomatike)

PERIODICAL: Sessiya AN SSSR po nauchn. probl. avtomatiz. proiz-va, 1956,  
Vol 3, M., AS USSR, 1957, pp 36-55, discussions 55-58

ABSTRACT: It is pointed out that silver-sulfide phototubes have a sensitivity of 10,000 microamp/lm vs. the 500-microamp sensitivity of selenium phototubes. Photoresistors prepared from cadmium-sulfide powder have a sensitivity up to 3 amp/lm. Sluggishness of photoresistors (their time constant being  $4 \times 10^{-5}$  to  $30 \times 10^{-3}$  sec) limits their application. A new, very promising semiconductor phototube — a germanium photodiode — is free of this disadvantage. Spectral sensitivity of commercially manufactured photodiodes and photoresistors is considered. Commercial manufacturing of the following devices

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*Session of the Acad Sci USSR on Scientific Problems  
of Automatic Production, 15-20 Oct 1956.*

8(0), 9(4)

SOV/112-58-3-4334

# Semiconductors and Their Application in Automation

is expected: (a) cadmium-selenide photoresistors having a sensitivity 10 times as high as that of cadmium-sulfide photoresistors; (b) lead-selenide photoresistors having a high sensitivity in the infrared region. Valve semiconductor silver-sulfide-type phototubes are interesting for some automation problems. They can be used both as primary elements and as supply sources. The commercially available KMT-10 thermoresistor in combination with an electromagnetic relay can be used for automatic devices that would sense a temperature rise within  $+20^{\circ}$  to  $+100^{\circ}\text{C}$  with an accuracy of  $1^{\circ}\text{C}$ . A semiconductor bolometer is expected to become commercially available; it is a thermoresistor in the form of a thin semiconductor film that changes resistance on absorption of radiated heat. The following items are reported: (1) germanium rectifiers with a current density of  $100,000 \text{ ma/cm}^2$  and a back voltage of 200 v; (2) varistors; (3) a new semiconductor device for quick and accurate magnetic-field measurements; (4) an electric light modulator that is a thin germanium

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8(0), 9(4)

SOV/112-58-3-4334

**Semiconductors and Their Application in Automation**

plate through which a luminous flux can pass; the flux value varies as a function of the current passing through the plate. Prospects for developing semiconductor devices are considered. Illustrations: 9.

S.S.K.

Card 3/3

KOLOMIYETS B.T.

48-5-1/56

SUBJECT: USSR/Luminescence

AUTHOR: Kolomiets B.T.

TITLE: Activation and Quenching of Photoconductivity in Cadmium Sulfide (Aktivirovaniye i tusheniye fotoprovodimosti v sul'fide kadmiya)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, 1957, Vol 21, #5, pp 643-647 (USSR)

ABSTRACT: The role of admixtures in the photoconductivity of powdered cadmium sulfide was investigated. The concentration of the admixture, copper, varied from  $10^{-6}$  to  $10^{-5}$  g per 1 g of cadmium sulfide. Its introduction gave rise to essential changes in the distribution of the internal photoelectric effect.

An increase in the copper content induced the rise of sensitivity and the arising of an additional maximum of photoconductivity at 600 mμ. The further increase of copper decreased the sensitivity of cadmium sulfide and finally led to its complete disappearance.

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The study of optical properties of cadmium sulfide activated by copper has shown that simultaneously with the appearance of the

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APPROVED FOR RELEASE: 09/18/2001  
 TITLE: Activation and Quenching of Photoconductivity in Cadmium Sulfide (Aktivirovaniye i tusheniye fotoprovodimosti v sul'fide kadmiya)

new photoconductivity maximum, an additional band arose in the absorption spectrum, the maximum of which exactly corresponded to the maximum of photoeffect.

Cadmium sulfide activated by copper possesses an intensive luminescence in the red and infra-red regions of spectrum. The longer wavelength part begins to prevail with the increase of copper content.

Experiments were carried out on the quenching of photoconductivity in cadmium sulfide by dopes-activators, such as iron, cobalt and nickel. The introduction of dopes into pure cadmium sulfide did not change considerably its spectral sensitivity. However, the introduction of an iron admixture into cadmium sulfide activated by copper led to considerable changes and finally to the quenching of photoconductivity. Cobalt and nickel had a similar effect on the spectral properties of cadmium sulfide.

The photoconductivity of cadmium sulfide decreased with increase of copper content. This phenomenon can be accounted for by

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48-5-1/56

Photoconductivity in Cadmium Sulfide

PA - 2044

### The Electric Properties of Some Oxide Semiconductors.

by means of diagrams and show the following results: On the basis of mixtures of copper oxide and manganese oxide it is possible to obtain a gamma of semiconductors with conductivities of from  $10^{-8}$  to  $10^{-1}$  ohm $^{-1}$ .cm $^{-1}$ . The constancy of the activation energy of this system within a wide range of the ratios Cu:Mn is interesting. According to their composition CO-MnO-O $_2$  semiconductors have conductivities of from  $10^{-3}$  to  $10^{-9}$  ohm $^{-1}$  cm $^{-1}$  and a considerably greater activation energy. The radiographic analysis showed i.e. that, in connection with the synthesis of samples, new chemical compounds are created which are discussed in short. Also the results of microscopic investigation are discussed on the basis of several illustrations. Accordingly, both groups of semiconductors consist of different crystalline phases; in by far the largest number of cases they have spinell structure. Next, the connection between electric conductivity and the microstructure of the material and with the structure of the crystal lattice is investigated. Among other things, it is probable that in the samples under investigation reciprocal solid solutions are formed at temperatures of more than 800° between

Card 2/3

KOLOMIYETS, B. T.

AUTHORS:

Vengel', T. N., Kolomiyets, B. T.

57-11-9/33

TITLE:

Glasslike Semiconductors (Stekloobraznyye poluprovodniki)

PERIODICAL:

Zhurnal Tekhn. Fiz., 1957, Vol. 27, Nr 11, pp. 2484-2491 (USSR)

ABSTRACT:

Some material properties in the system  $As_2Se_3 - As_2Te_3$  are given. It is the continuation of the paper in Izv. AN SSSR, Ser. fiz. XX, Nr 12, 1496, 1956. This system is characterized by a great number of glasslike substances and by a single-phase structure in its crystal part. The correlation between the variation of the chemical composition of the glasses and the conductivity, the photoconductivity, absorption, thermo-electromotive force, and density was detected. The variations of the properties in the case of transition from the glasslike state into the crystalline and the dependence of the properties from the composition variation were investigated. It is shown that the statement that the new "chalcogenid" glasses with increased conductivity are typical semiconductors is justified to its full extent. The existence of a distinct inner photo effect with an inertia which does not differ from that of the photo effects of ordinary semiconductors proves that in the case of glasses of the  $As_2Se_3 - As_2Te_3$  system the conductivity is an electron conductivity. It is shown that such properties as density, conductivity, photo conductivity, absorp-

~~Cont 1/3~~

*Leningrad Physical Tech Inst. AS USSR*

Glasslike Semiconductors.

tion limit and in a somewhat more complicated form also the thermo-electromotive force change gradually to such an extent as the  $As_2Te_3$  content changes. It is assumed that the glasslike part of the  $As_2Se_3 - As_2Te_3$  system forms a continuous series of solid substitution solutions and that from this point of view there is no difference between the glasslike and the crystalline substances. In either case the nature of the substituting atoms plays the decisive role in the variation of the electric properties, not the sequence of their order. A greater atomic weight of the telluride leads to the increase of the density, a greater "metallizing" to the increase of the conductivity. The system is also in its crystalline part a continuous series of solid substitution solutions. There are 10 figures, 2 tables, 6 Slavic references.

~~Cont 2/3~~

KOLOMIYETS, B. T., (Dr. Tech. Sci.) (Prof.)

"Photoresistors and Their Basic Parameters"

(Use of Semiconductors in Instrument Making; Transactions of a Conference)  
Moscow, Mashiz, 1958. 258 p.

AUTHORS: Kolomiyets, B. T., Mal'kova, A. A.

SOV/57-58-8-7/37

TITLE: Properties and Structure of Ternary Semiconductor Systems  
(Svoystva i struktura troynykh poluprovodnikovyykh sistem).  
IV. Electric and Photoelectric Properties of Solid Substitution  
Reactions in the System ZnTe-CdTe (IV. Elektricheskiye i  
fotoelektricheskiye svoystva tverdykh rastvorov zameshcheniya  
v sisteme ZnTe-CdTe)

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1958, Nr 8, pp. 1662 - 1669 (USSR)

ABSTRACT: As was shown by Goryunova and Fedorova in reference 7, the  
system ZnTe-CdTe forms a continuous series of solid substitution  
solutions. This is a study of the electric and of the photo-  
electric properties intended to determine the correlation between  
the modifications of the composition and the lattice constant  
on the one hand and the electric properties on the other. The  
initial substances Cd, Zn, and Te were purified by a distillation  
in vacuo. The solid solutions were produced by a combined melting  
of these elements. The solid solutions of ZnTe-CdTe exhibit  
the same dependence of electric and of photoelectric properties  
upon variations in the composition as was found earlier in  
other solid substitution solutions. This includes the linear

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Properties and Structure of Ternary Semiconductor Systems. IV. Electric and Photoelectric Properties of Solid Substitution Reactions in the System ZnTe-CdTe

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variation of the lattice parameters with the composition and the monotonous modification of the conductivity and of the thermo e.m.f. The system InAs-InP exhibits a linear dependence of the width of the forbidden zone upon the lattice parameters and a monotonously varying conductivity and thermo e.m.f. The system ZnTe-CdTe is the second of such systems which shows such a variation of the forbidden zone. The values of the effective masses of the initial binary solutions of CdTe and ZnTe are close to each other. They amount to 0,34 and 0,2, respectively. Thus these data agree with the hypotheses of Weiss, Folberth and Herman (Refs 6,5,3) concerning the existence of a linear dependence of the width of the forbidden zone upon the composition of solid solutions exhibiting the same zonal structure. ZnTe, which has a forbidden zone with a width of 2,1 eV (which value agrees with the position of zinc telluride in the crystallochemical group of zincblende compounds) (Ref 24) possesses a considerable hole-conductivity of the order of  $10^{-1} \text{ Ohm}^{-1} \cdot \text{cm}^{-1}$ . This is apparently caused by the fact, that the zinc telluride in all cases has a composition deviating from the stoichiometrical rate. This may be caused

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Properties and Structure of Ternary Semiconductor Systems. IV. Electric and Photoelectric Properties of Solid Substitution Reactions in the System ZnTe-CdTe

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by the low solubility of Zn in ZnTe. The authors are disposed to explain the fact that the sign of the carriers remains unchanged when Zn atoms are introduced in excess into ZnTe just by this circumstance. B.V.Pavlov and V.A.Sladkova assisted in this work. There are 7 figures, 3 tables, and 24 references, 9 of which are Soviet.

ASSOCIATION: Fiziko-tekhnicheskii institut AN SSSR Leningrad (Physical and Technical Institute, AS USSR, Leningrad)

SUBMITTED: July 16, 1957

Card 3/4



AUTHORS: Kolomiyets, B. T., Larichev, V. N. 57-28-5-1/36

TITLE: Investigation of the Photoelectric Properties of Semiconductors of the Group PbS by Means of the Condenser Method (Issledovaniye fotoelektricheskikh svoystv poluprovodnikov gruppy PbS kondensatornym metodom)

PERIODICAL: Zhurnal Tekhnicheskoy Fiziki, 1958, Vol. 28, Nr 5, pp. 921-924 (USSR)

ABSTRACT: As is known, lead-sulfide, -selenide and -telluride exhibit a strong photosensitivity in the infrared range only, if they are in shape of small polycrystalline layers, which were specially treated (activated) in oxygen or in air at temperatures of from 300 to 500°C. According to the activation conditions, the photosensitivity can change by the hundred- or thousand-fold. In order to understand the nature of the photoconductivity of such activated layers, it is of interest to investigate the non-activated substances. This, however, is connected with great experimental difficulties. The authors applied in their experiments the condenser method for the investigation of the internal

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*Physics Tech Inst. AS USSR, Leningrad*

Investigation of the Photoelectric Properties of  
Semiconductors of the Group PbS by Means of the  
Condenser Method

57-28-5-1/36

photoeffect in semiconductors (References 1 - 4). The results obtained on the basis of the examinations are as follows: The photo e. m. f. which was determined in lead-sulfide, -selenide and -telluride by means of the condenser method, and the photoconductivity in the activated layers of these semiconductors are of a completely different type and are caused by two different processes. According to data in publications it can be assumed, that the width of the forbidden zone equals 0,37, 0,25 and 0,3 eV at room temperature, corresponding to PbS, PbSe and PbTe. These values correspond to the activation energy, which was computed according to the long-wave limit of photoconductivity. If, however, the activation energy is computed according to the red limit of the spectral distribution of the photo e. m. f., values are obtained exceeding by from 5:8 times the width of the forbidden zone. Contrary to the photoconductivity the photoeffect exhibiting such a spectral distribution cannot be explained by spatial processes.

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Investigation of the Photoelectric Properties of  
Semiconductors of the Group PbS by Means of the  
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Just as much the great time constant of the photo e. m. f. (up to  $10^{-2}$  sec) cannot correspond to the mean life of the light carriers in the volume, nor to the period of diffusion equilibrium. In more pure monocrystals of PbSe and PbTe the mean life of the carriers, which are not in equilibrium, does not exceed  $10^{-7}$ . The assumption seems to be most probable, that the hydrogen atoms adsorbed at the surface represent very deep superficial level wells for the electrons. Therefore the photoeffect is caused by a liberation of electrons from these wells by the action of visible light. This assumption is also proved by the fact that the magnitude, the sign and the shape of the spectral distribution of the photo e. m. f. is markedly dependent upon the influence of the atmospheric oxygen. From this assumption it also proceeds, that the sign of the photo e. m. f. in the general case does not determine the sign of the photocurrent. The results of this work cannot be regarded as final. Further investigations are necessary.

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AUTHORS: Goryunova, N. A., Kolomiyets, B. T., Shilo, V. P. 57-28-5-11/36

TITLE: Vitreous Semiconductors (Stekloobraznyye poluprovodniki)  
II. Glass Formation in Alloys of the Chalcogenides of Phosphorus, Arsenic, Antimony, Bismuth and Thallium (II. Stekloobrazovaniye v splavakh khal'kogenidov fosfora, mysh'yaka, sur'my, vismuta i talliya)

PERIODICAL: Zhurnal Tekhnicheskoy Fiziki, 1958, Vol. 28, Nr 5, pp. 981-985 (USSR)

ABSTRACT: In the present paper the authors attempted to determine the maximum limit of the vitreous state by means of a variation of the cooling conditions in the earlier described systems. This became a necessity in connection with the investigation of their semiconductor properties. A comparison of these properties in substances of identical chemical composition, however, in different states, - in the crystalline and in the vitreous - proves to be of great interest. Alloys of 7 pseudobinary sections of the ternary systems served as investigation samples: 1)  $As_2Te_3-As_2S_3$ ; 2)  $As_2S_3-As_2Se_3$ ; 3)  $As_2Se_3-As_2Te_3$ ; 4)  $As_2S_3-Sb_2S_3$ ; 5)  $As_2Se_3-Sb_2Se_3$ ; 6)  $Tl_2S-As_2S_3$ ; 7)  $Tl_2Se-As_2Se_3$  as well as alloys of the pseudobinary section of the system  $Tl_2Se$ .

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Vitreous Semiconductors. II. Glass Formation in Alloys of the Chalcogenides of Phosphorus, Arsenic, Antimony, Bismuth and Thallium Chalco-57-28-5-11/36

$\text{As}_2\text{Se}_3\text{-Tl}_2\text{Te}$ ,  $\text{As}_2\text{Te}_3$ . They were investigated under two kinds of cooling conditions. It is important for the investigation of physical properties and for the clearing of the mechanism of glass formation in chalcogenous glass to investigate the crystallization processes and the phase composition of the crystallized substances. This problem was studied by the authors together with the Institute for Crystallography, of the AS USSR (Laboratory of Professor Z. G. Pinsker). A comparison of works conducted at the same objects showed that the crystallization process can proceed in various directions under different conditions. In the crystallization of substances in the shape of blocks it is possible to characterize the intermediate stages of annealing by the simultaneous coexistence of the crystalline and the vitreous phase. On the contrary only completely crystalline substances are obtained after annealing of thin films. On the strength of the preliminary investigations it can be said that, as was to be expected, the transition of all investigated substances into the crystalline state is possible. However, this process is complicated. At an approach to the limits of glass formation the crystallization in general

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Vitreous Semiconductors. II. Glass Formation in Alloys of the 57-28-5-11/36  
Chalcogenides of Phosphorus, Arsenic, Antimony, Bismuth and Thallium

is facilitated. Investigations in this direction are continued. In this paper the limits of glass formation in systems on a phosphorus basis were moreover, investigated. The systems:  $\text{As}_2\text{S}_3$ - $\text{P}_2\text{S}_3$  and  $\text{As}_2\text{Se}_3$ - $\text{P}_2\text{Se}_3$  were synthesized. The glass formation was also determined under two kinds of synthesis conditions - at slow and quick cooling (hardening) (figure. 3). The phosphorus sulfides and -selenides permit together with other chalcogenides to produce a great number of vitreous substances. The properties of these substances should be subjected to a thorough examination. In the paper (Ref 6) then was mentioned that the semiconducting glasses admit a considerable deviation from the stoichiometrical composition. From this viewpoint the ternary system  $\text{Tl-As-Se}$  was investigated at slow cooling (figure 4). It can be discerned, that the domain of glass formation in the system  $\text{Tl-As-Se}$  is comparatively great. Therefore the diagram of the pseudobinary system  $\text{TlSe-As}_2\text{Se}_3$ , which assumes an interaction of the stoichiometrical amounts of the binary components, yields considerably less vitreous components than that diagram, which is

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Vitreous Semiconductors.II.Glass Formation in Alloys of the 57-28-5-11/36  
Chalcogenides of Phosphorus, Arsenic, Antimony, Bismuth and Thallium

obtained on the basis of the initial elements. There are 4  
figures and 10 references, 4 of which are Soviet.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR, Leningrad  
(Physico-technical Institute, AS USSR, Leningrad)

SUBMITTED: April 15, 1957

1. Semiconductors--Phase studies

Card 4/4

AUTHORS:

Kolomiyets, B. T., Larichev, V. N.

57-28-6-33/34

TITLE:

On the Problem of the Mechanism of Conductivity and Photoconductivity in Polycrystalline Layers of Semiconductors of the PbS Group (K voprosu o mekhanizme provodimosti i fotoprovo-  
dimosti v polikristallicheskikh sloyakh poluprovodnikov gruppy PbS)

PERIODICAL:

Zhurnal Tekhnicheskoy Fiziki, 1958, Vol. 28, Nr 6,  
pp. 1358 - 1362 (USSR)

ABSTRACT:

In the present paper some experimental results obtained by the investigation of the influence exercised by oxygen upon the electric and photoelectric properties of polycrystalline layers of PbS, PbSe and PbTe are described. On the basis of the work carried out the following conclusions may be drawn: The non-linearity of the volt-ampere characteristics of the photosensitive samples can be looked upon as proof of the fact that non-ohmic transition resistances exist in the most active layers, and that they play an important part in the mechanism of the conductivity and photoconductivity of the layers. For such samples the barrier theory of p-n-p transitions is applicable. It was

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On the Problem of the Mechanism of Conductivity and Photoconductivity in Polycrystalline Layers of Semiconductors of the PbS Group 57-28-6-33/34

worked out by Slater (Reference 7) and Petritz (Reference 8) with respect to the layers of PbS. In photoresistances of PbSe and in particular of PbTe the p-n-p transitions are of secondary importance. The oxygen, which is introduced into the layers at room temperature, is adsorbed at the edges of the microcrystals. The nonlinearity of the volt-ampere characteristics of such samples do not prove, in the authors' opinion, that there is no negative surface charge, but solely that there are no potential barriers on the edges of the microcrystals. Apparently the influence exercised by the opposite boundary of the microcrystals (Reference 9) makes itself felt. It follows herefrom that the barriers of the Schottky type do not exercise any considerable influence upon the conductivity and photoconductivity of the polycrystalline layers of semiconductors of the PbS group and that the theory developed by Smith and Gibson (Reference 1 and 6) is not applicable in this case. The surface states occurring as a result of oxygen adsorption apparently manifest themselves by the existence of the photoeffect (with a maximum of spectral distribution in the visible part with a high degree of inertia),

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On the Problem of the Mechanism of Conductivity and Photoconductivity in Polycrystalline Layers of Semiconductors of the PbS Group 57-28-6-33/34

which is observed when measuring the photoelectromotive force by the condenser method (Reference 10). There are 3 figures and 10 references, 2 of which are Soviet.

SUBMITTED: July 22, 1957

1. Semiconducting films—Conductivity 2. Semiconducting films—Photoconductivity 3. Semiconducting films—Electron transitions 4. Oxygen—Electrical effects 5. Lead alloys—Properties

Card 3/3

KOLOMIYETS, B.T.; MAL'KOVA, A.A.

Properties and structure of ternary semiconductor systems. Part 4.  
Zhur. tekhn. fiz. 28 no. 8:1662-1679 Aug '58. (MIRA 11:10)

1. Fiziko-tehnicheskiy institut AN SSSR, Leningrad.  
(Zinc-cadmium-tellurium alloys--Electric properties)  
(Semiconductors)

AUTHORS: Goryunov, M. A., Koloniyets, B. E. 001/51-2-1-1/55

TITLE: Vitreous semiconductors (stekloobraznyye poluprovodniki)  
IV. Mechanisms of Vitrification (IV.   
o voprosu o zakononamost'akh stekloobrazovaniya)

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1958/Vol 28, Nr 9, pp. 1922-1922 (USSR)

ABSTRACT: This is a study of the glass formation capability of semi-conductors. First information is presented bearing on the present state of problems connected with the chemical nature of glass formation as collected from recent publications. All these papers are confined to a study of oxide glasses or of high-polymeric organic glasses. In this paper a qualitative picture of glass formation is presented which is based upon experiments with a group of chalcogenes and of some other semiconductors concerning the character of the chemical binding. The authors arrived at the following conclusions: the glass formation is connected with the chemical nature of the atoms, with the character of electron interaction between the atoms and with the particular features exhibited by the short-range order in a molten state which are connected with

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Vitreous Carbonaceous

SPV/57-23-9-9/33

this interaction. The necessary condition of glass formation is the existence of a covalent binding in these substances in the solid and in the molten state. The metallization of the covalent bindings obstructs the glass formation. In extreme cases it is even prevented. The tetrahedron covalent bindings forming according to the Grima-Sommerfeld (Grimm-Zommerfeld) rule which are not destroyed in the melt also prevent glass formation. There are 3 tables and 34 references, 21 of which are Soviet.

ASSOCIATION: Leningradskiy fiziko-tekhnicheskii institut AN SSSR  
(Leningrad Physical and Technical Institute AS USSR)

Card 2/2

K. Lomiyets, B.T.

PHASE I BOOK INFORMATION 307/334

Abadziya bank SSSR. Otdeleniye fiziko-matematicheskikh nauk  
Fizika tverdogo tela; sbornik statey, II (Solid State Physics; Collection  
of Articles, II) Moscow, Izdat. AN SSSR, 1979. 328 p. 3,500  
copies printed.

Ed.: A. P. Ioffe, Academician; Ed. of Publishing House: V. S. Filipovich;  
Tech. Ed.: M. A. Zamarayeva.

PURPOSE: This collection of articles is intended for physicists investigating  
the structures and properties of solids.

COVERAGE: This volume II of a two-volume collection of articles dealing with  
problems of solid state physics, was prepared by the Department of Physics  
and Mathematics, Academy of Sciences, USSR. The authors report on the physical  
properties of substances, such as germanium, cadmium sulfide, gallium selenide,  
sulfur, silicon, and various metal alloys. The electrical con-  
ductivity of these substances is studied. The effects of irradiation and con-  
tamination on semiconductors are also investigated. Several articles are  
devoted to the theory of electrical breakdown. X-ray studies were made on  
polymer crystalline substances, and on study of the gold-barrier system in  
GaAs. No personalities are mentioned. References accompany each article.

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KoLomyeTs, B.T.

24(4)

PHASE I BOOK REPLICATION NOV/3140

Akademiya nauk Ukrainoskoy SSR. Institut fiziki

Photoelektricheskiye i opticheskoye yavleniya v poluprovodnikakh i trudy pervogo vsesoyuznogo sovremennogo fotoelektricheskogo i opticheskogo yavleniya v poluprovodnikakh, g. Kiev, 20-26 noyabrya 1957 g. (Photoelectric and Optical Phenomena in Semiconductors; Transactions of the First Conference on Photoelectric and Optical Phenomena in Semiconductors...) Kiev, 1959. 403 p. 3,000 copies printed.

Additional Sponsoring Agency: Akademiya nauk USSR, Prezdium.

Komissiya po poluprovodnikam.

Ed. of Publishing House: I. V. Kisina; Tech. Ed.: A. A. Matveychuk; Rep. Ed.: V. Ye. Lashkarev, Academician, Ukrainian SSR, Academy of Sciences.

PURPOSE: This book is intended for scientists in the field of semiconductor physics, solid state spectroscopy, and semiconductor devices. The collection will be useful to advanced students in universities and institutions of higher technical training specializing in the physics and technical application of semiconductors.

CONTENTS: The collection contains reports and information bulletins (the latter are indicated by asterisks) read at the First All-Union Conference on Optical and Photoelectric Phenomena in Semiconductors. A wide scope of problems in semiconductor physics and technology are considered: photoelectric activity, photoelectric forces, optical properties, photoelectric cells and photoresistors, the action of light on semiconductor systems, photoresistors, the action of light on complex semiconductor systems, the properties of thin films, and complex semiconductor systems, etc. The materials are prepared for publication by E. I. M. K. Rabinov, O. V. Shitko, K. B. Tolpygo, A. P. Lubchenko, and Shevchenko. References and discussion follow each article.

Photoelectric and Optical Phenomena (Cont.) NOV/3140

Kisleva, M. K., and B. T. Kolomyets. The Role of Impurities in Internal Photoelectric Effect in Gaps and Zns 99

Shneider, A. D. Investigation of the Photo conductivity of CdTe 107

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Kolomyets, B. T., and B. V. Pavlov. Displacement of the Edge of the Absorption Band in Vitreous Semiconductors of the System As<sub>2</sub>S<sub>3</sub>-As<sub>2</sub>S<sub>3</sub> 201

Kolomyets, B. T., and V. M. Karichev. Investigation of Photoelectric Properties of Semiconductors of the PbO Group by the Condenser Method 316

Kolomyets, B. T., A. O. Oleksa, and A. O. Pryshchak. New Types and Designs of Photoresistors and Their Characterization (These) 371

68951  
SOV/81-60-2-3808

24.7700

Translation from: Referativnyy zhurnal. Khimiya, 1960, Nr 2, p 38 (USSR)

AUTHORS: Zeynalov, A.Kh., Kolomiyets, B.T.

TITLE: The Photoconductivity of Single Crystals of Antimony Selenide

PERIODICAL: Uch. zap. Azerb. un-t, Fiz.-matem. i khim. ser., 1959, Nr 1, pp 79-83  
(Azerb. summary)

ABSTRACT: The spectral distribution curve of the inner photoeffect of  $Sb_2Se_3$  single crystals has two maxima: at  $\sim 500 \text{ m}\mu$  and  $\sim 1 \mu$ ; the specific sensitivity in the polycrystalline samples investigated varied within the range of 12 - 40  $\mu \text{ a/lumen v.}$  In order to take into account the sharply pronounced anisotropy of single crystals the curves of the spectral distribution of photoconductivity were measured for three mutually perpendicular directions. It has been established that for all three directions, both maxima do not change their positions, but their relative values essentially depend on the direction chosen: the photoconductivity which is measured along the layers has a clearly expressed short-wave maximum and a weak long-wave maximum, whereas in the photoconductivity measured perpendicular to the layers the opposite is true. The integral

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The Photoconductivity of Single Crystals of Antimony Selenide

sensitivity of individual samples of  $\text{Sb}_2\text{Se}_3$  single crystals was  $200 \mu \text{ a/lumen v}$  at 200 lux. It has been discovered that in the case of substituting Sb by atoms of As and Bi the short-wave maximum shifts to the side of longer wave-lengths, but the position of the long-wave maximum remains unchanged. In the case of substituting Se by S atoms the short-wave maximum remains on its place, but the long-wave maximum shifts to the side of short waves.

A. Shteynberg ✓

Card 2/2

S/058/52/000/004/055/160  
AO58/A101

AUTHORS: Kolomiyets, B. T., Olesk, A. O., Pratusovich, S. G.

TITLE: New forms of photovaristors, their design and their characteristics  
(theses)

PERIODICAL: Referativnyy zhurnal, Fizika, no. 4, 1962, 22, abstract 4G182  
(V sb. "Fotoelektr. i optich. yavleniya v poluprovodnikakh". Kiev,  
AN USSR, 1959, 371-372)

TEXT: The authors worked out a technology for preparing photovaristors  
from polycrystalline, powdery CdSe, and recorded their characteristics.

[Abstracter's note: Complete translation]

Card 1/1 .

89120

S/058/61/000/002/006/018  
A001/A001

9.4160 (also 1137)

Translation from: Referativnyy zhurnal, Fizika, 1961, No. 2, p. 307, # 2E477

AUTHORS: Zeynalov, A.Kh., Kolomiyets, B.T.

TITLE: Conductivity and Photoconductivity of Antimony Selenide Single Crystals

PERIODICAL: "Uch. zap. Azerb. un-t. Fiz.-matem. i khim. ser.", 1959, No. 4, pp. 37 - 44 (Azerb. summary)

TEXT: It is shown that photoconductivity of  $Sb_2Se_3$  single crystals has some characteristic features. A study of dependence of photocurrent on illumination intensity revealed that recombination was not of bimolecular nature, at least up to illuminations of 1,500 lux. One level of recombination centers is at 0.54 eV from the valence zone. The curve of photosensitivity spectral distribution has, in addition to the main maximum located at the absorption edge ( $1 \mu$ ), one more maximum within the absorption band ( $0.5 \mu$ ). The presence of this second maximum points out specificity of surface photoconductivity in  $Sb_2Se_3$  single crystals which should become the subject of a special study. An analysis of re-

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S/058/61/000/002/006/018  
A001/A001

Conductivity and Photoconductivity of Antimony Selenide Single Crystals

Relaxation curves of photoconductivity showed the presence of adhesion levels. Due to this fact the time of photocurrent drop at small light fluxes becomes equal to  $4 \times 10^{-4}$  sec which is considerably longer than the actual life time of non-equilibrium carriers, being  $10^{-5}$  sec. The high integrated sensitivity, specific features of spectral distribution and low inertness of  $\text{Sb}_2\text{Se}_3$  render it the material with favorable outlook for new photoresistors. ✓

Translator's note: This is the full translation of the original Russian abstract.

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IVANOV-OMSKIY, V.I.; KOLOMIYETS, B.T.

Some properties of the alloy InSb-GaSb. Fiz. tver. tela 1 no.4:  
568-569 '59. (MIRA 12:6)

(Indium-antimony-gallium alloys)

KOLONIYETS, B.T.; LYUBIN, V.M.

Properties and structure of ternary semiconducting systems. Part 6:  
Electric and photoelectric properties of layers of the  $\text{Sb}_2\text{S}_3\text{-Bi}_2\text{S}_3$   
system. Fiz.tver.tela 1 no.5:740-747 My '59. (HIRA 12:4)  
(Photoelectricity)  
(Semiconductors--Electric properties)

KOLOMIYETS, B.T.; LYUBIN, V.M.; TARKHIN, D.V.

Conductivity and photoconductivity in antimony triselenide films.  
Fiz. tver. tela 1 no.6:899-902 Je '59. (MIRA 12:10)  
(Antimony selenide --Electric properties)

IVANOV-OMSKIY, V.I.; KOLOMIYETS, B.T.

Equilibrium solid solutions in the system InSb - GaSb. - GaSb.  
Fiz. tver. tela 1, no.6:913-918 Je '59. (MIRA 12:10)

1. Leningradskiy fiziko-tekhnicheskiy institut AN SSSR.  
(Indium antimonide) (Gallium antimonide)



KOLOMIYETS, B.T.; ZEYNALLY, A.Kh.

Photoconductivity of  $\text{Sb}_2\text{Se}_2$ . Fiz. tver. tela 1 no.6:979-980 Je '59.  
(MIRA 12:10)

1. Leningradskiy fiziko-tekhnicheskoy institut AN SSSR.  
(Photoconductivity) (Antimony selenide--Electric properties)

67296

24.7600

9(7)

AUTHORS:

Burdiyan, I.I., Kolomiyets, B.T.

SOV/181-1-8-1/32

TITLE:

Investigation of Conductivity and Hall Effect in Solid Solutions of the AlSb - GaSb System

PERIODICAL:

Fizika tverdogo tela, 1959, Vol 1, Nr 8, pp 1165-1171 (USSR)

ABSTRACT:

The present paper describes a method of producing relatively pure substances of the AlSb - GaSb system; also results of the investigation of conductivity as depending on composition and temperature and of the Hall effect in the range from 110 K to temperatures near the solidus temperature of various compounds. The individual paragraphs of the paper deal with conductivity distribution in the cast piece, temperature dependence of conductivity and Hall effect, composition dependence of the forbidden-zone width, concentration and mobility of the current carriers. Final digest: In the solid substitute solutions of the AlSb - GaSb system the composition dependence of conductivity at room temperature and in the range of intrinsic conductivity changes smoothly and passes through a minimum for the composition AlSb.GaSb. Substances containing  $10^{18}$  impurities per  $\text{cm}^3$  pass over to intrinsic conductivity, according to their composition, in the range between 700 and 900 K. The

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SOV/181-1-8-1/32

Investigation of Conductivity and Hall Effect  
in Solid Solutions of the AlSb - GaSb System

width of the forbidden zone changes smoothly from 0.8 to 1.6 eV, i.e., between the values of the forbidden-zone width of AlSb and GaSb. In the present method of preparation impurity concentration is  $6.7 \cdot 10^{17}$  to  $2 \cdot 10^{18} \text{ cm}^{-3}$  at room temperature. When temperature is varied, impurity concentration remains constant up to that temperature where intrinsic conductivity commences. However, concentration increases rapidly when temperature is further raised. Current carrier mobility in the AlSb - GaSb system increases with increasing GaSb concentration. The compounds having the desired purity (99.98% for Ga and 99.99% for Sb) exhibited a mobility of 75 to 250  $\text{cm}^2/\text{v} \cdot \text{sec}$ . The authors thank N.A. Goryunova for valuable advice and discussion of the results. There are 7 figures, 1 table, and 5 Soviet references.

ASSOCIATION: Fiziko-tehnicheskiy institut AN SSSR, Leningrad (Physical and Technical Institute of the AS USSR, Leningrad) 11

SUBMITTED: August 8, 1958  
Card 2/2

24 (0)  
AUTHOR:

Kolomiets, B. T., Doctor of Technical Sciences SOV/30-59-10-43/51

TITLE:

Study of Semiconductor Materials

PERIODICAL:

Vestnik Akademii nauk SSSR, 1959, Nr 10, pp 107-108 (USSR)

ABSTRACT:

The Institut metallurgii im. A. A. Baykova (Metallurgical Institute imeni A. A. Baykov) and the Fiziko-tekhnicheskii institut (Institute of Physical Technology) held the 4th Conference on semiconductor materials, with special regard to compounds and mixed crystals, in Moscow from June 22 to 26, 1959. The Conference was attended by more than 60 institutions. A considerable part of the reports was devoted to compounds of type A<sup>III</sup>B<sup>V</sup>. Another group of reports by chemists dealt with the investigation of various semiconductor phases and systems, with special regard to the elements of the sixth group - sulphur, selenium and tellurium. Other problems dealt with were those concerning the extraction and investigation of binary compounds, the thermodynamics of semiconductors, and the technology of extraction of both simple and complex semiconductor materials. The Conference adopted resolutions

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APPROVED FOR RELEASE: 09/18/2001

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SOV/30-59-10-43/51

Study of Semiconductor Materials

concerning the further development of investigations in this field, and outlined the principal directions of theoretical work. The next Conference on semiconductor materials is scheduled to take place in Leningrad in 1961.

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